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ORIGINAL ARTICLES.

DENTAL CARIES, AND ITS RELATIONS TO THE GERM THEORY OF DISEASE.

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Read in the Section on Oral and Dental Surgery of American Medical Association, May, 1884.

Caries of the teeth has been defined as a molecular disintegration of the tooth substance; or a breaking down of the chemical constituents of the tooth, molecule by molecule. This destruction always has its beginning on the surface of the tooth, or in some pit, crevice, or other imperfection in the enamel. And it spreads from this point, as the focus, in every direction, the dentine being destroyed more rapidly than the enamel; hence it usually happens that the cavity is larger within than on the surface of the tooth. Caries does not seem to be a simple solution of the tooth's substance; sometimes we find nearly all of the material removed from the cavity, in other cases we find the dentine reduced to a pulpy, or semi-glutinous mass, in which the structure of the dentine is more or less perfectly preserved. Some decays are white, some are black, some have a yellow tinge. All the shades from white to black may be found. But it was not my intention to give a lengthy description of the results of caries; but rather to confine myself as closely as possible to the discussion of the probable cause of the affection. I say probable cause, for I do not assume that the cause, or causes, are certainly known. Indeed, we may say that at the present time there is the greatest disagreement, among even the best informed men, on this important subject; and that it is still very uncertain that any of the theories in regard to the matter are correct. It is proper that I should say, however, that more than one of these explain the phenomena with sufficient accuracy to be of great value, both in the prevention and treatment of this affection. It must not be supposed that a theory must be absolutely correct to be of use. Theories are usually contrived in the effort to explain phenomena, and it often happens that a false theory leads to as good an application of means to ends as the true one would do. Of this, however, we can never have any assurance; therefore, as long as there is a reasonable doubt, the search for the truth should continue.

The theory for the explanation of caries which has received the greatest attention, and the widest recognition in modern times, is what is known as the acid theory. This theory seems to account for the phenomena more perfectly than any other that has yet attained prominence in the minds of thinking men. As a working theory, a basis upon which to found principles of treatment, it has, undoubtedly, been the means of much good. Yet, in the scientific aspect of the subject, there is much objection to be urged against it. A very large amount of work has been done with the view of demonstrating the absolute truth of this theory; all of which must be regarded as a failure, so far as the attainment of that particular object is concerned. The labor has not been lost, however, but on the other hand has been of immense value. It is this labor, the basis of fact which it has brought to light, that will be of most service to us in the building up of other theories for the explanation of the phenomena, which may serve us usefully until such time as theories shall be displaced by demonstration; the goal to which we are all looking forward.

According to the chemical theory the substance of the tooth is decomposed by an acid; this acid acts more readily on dentine than upon the enamel, therefore the tendency to the enlargement of the cavity toward the internal portions of the tooth. Some writers, as Dr. Watt, have attempted to define the acids thus acting, and to divide decays into classes according as this or that acid is active in its production. The acids that have been thus pointed out are, nitric acid (white decay), sulphuric acid (black decay), and chlorohydric acid (intermediate colors).

Most of those who have written on this subject, however, have been content without specifying the particular acids so definitely; while some have been of the opinion that these particular acids have little or nothing to do with the matter, and seek to show that other acids are more likely to do the ugly work.

The views of Dr. Watt have received much commendation in this country, but not so in the old. There, other men have been prominent, and we find that while they have agreed in the main, there are important differences between them. As we have said, Dr. Watt has maintained that decay is caused by the acids—nitric, chlorohydric, and sulphuric, with possibly others.

In Europe the influence of these particular acids has been very generally denied, and the results attributed to other acids, as the lactic, acetic and the group known as the organic acids. Among those

that have examined this subject, none, perhaps, have attained a wider hearing than Magitot, of Paris. This gentleman published a work on this subject in 1868, in which he makes an extended examination of the subject, arriving at the conclusion that decay is caused by acids. These acids, however, are derived from the saliva through the process of ferment action. Dr. Magitot instituted a long series of experiments to determine the effects of the suspected acids on the teeth. This series of experiments shows that most of the organic acids act very feebly on the teeth in the proportion of one to one thousand of water; and that in the proportion of one to one hundred they act quite energetically; so that the teeth submitted to their action will be completely decalcified within a few weeks or months. Most of this series of experiments were continued, however, for two years. The conclusion seems to be that caries may be produced by any of the group of acids that may be developed by the fermentation of the saliva. These are the lactic, acetic, butyric, etc.

Dr. Magitot states distinctly, that the agency of micro-organisms in the production of these acids, is admitted by him; but discusses this phase of the subject no further. He makes no effort to determine to what extent these acids may be formed in the mouth. All of his experiments were tried out of the mouth, and no provision, whatever, was made to ascertain the effect that fermentation may have had on his solutions in the progress of his experimentation. This being the case, the only result of the experiments is the determination of the strength of the solutions of these different acids, necessary to decalcify a tooth.

This, together with the fact, obtained from other sources, showing that most of these acids are the products of certain fermentations that may go on in the mouth, gives much force to Dr. Magitot's conclusions.

Very soon after Dr. Magitot's work, in the same year, indeed, came the work of Lieber and Rottenstein, to which we have referred. The work seems to have been written for the express purpose of showing that decay of the teeth is caused by the life and development of the fungus known as leptothrix buccalis. In this the authors seem to have signally failed. They certainly make but little advance toward the demonstration of the parasitic theory of this affection. Indeed they do not seem to have endeavored to show that this fungus does more than promote decay that has already been established.

They say, after having made an extensive examination of the life and growth of the leptothrix, "From what has been said it results that two principal phenomena manifest themselves in the formation of dental caries, viz: the action of acids, and the rapid development of a parasitic plant, the leptothrix buccalis."

They do not suppose the leptothrix buccalis capable in itself of attacking the teeth, if their condition be normal, but when their surfaces are once softened by acids, then the fungus may penetrate the portions thus softened, and continue the destruction.

Again they say: "It seems that the fungi are not able to penetrate an enamel of normal consistency. The dentine itself, in its normal condition of density, offers great difficulties to their entrance, and we are not yet sure that the leptothrix could triumph over this resistance." Again: "We cannot decide at present if the leptothrix is able to penetrate sound dentine, when, from any circumstance, it happens to be denuded." * * * "But, if the enamel or dentine are become less resistant at any point, through the action of acids; or if, at the surface of the dentine, a loss of substance has occurred, then the elements of the fungus can pass into the interior of the dental tissues, and produce by their extension, especially in the dentine, effects of softening and destruction much more rapid than the action of the acids alone is able to accomplish." * * * "The participation of the fungus is constant in the progress of caries which have reached this stage. As soon as a loss of substance can be shown there is found the presence of the fungus, so that the question whether or no the acids alone could produce ravages more considerable is without importance."

The modus operandi by which leptothrix may produce softening of dentine is left without explanation. We can conceive, however, that they may do something to assist the softening process by the outpouring of a digestive fluid. If, however, this fungus gave a fluid that would digest a tooth, we would think that sound teeth would be very scarce, for it grows abundantly in every mouth.

Since the time of Lieber and Rottenstein's work we remember of no other of much importance having appeared on this subject. The discussion has continued, however, in the journals. We cannot undertake to review this literature, interesting as it would be; but we must content ourselves with one writer, Dr. Miller, now of Berlin.

Dr. Miller's experiments bear the stamp of being more carefully performed than any that have previously come to our knowledge. This was have been expected from the fact that they are the latest, giving the experimenter the advantage of all that has gone before, and for the reason that he is very favorably placed for such work, being in the midst of the best experimenters of the world. Therefore his work is looked to with unusual interest.

We need not, however, notice any but his last series of articles, that which is now appearing. We cannot, of course, criticise Dr. M.'s work now, for we have not heard him through; but enough has appeared to show very clearly what the result will be.

Dr. M. begins this series of articles with this sentence: "During the last two years I have stated at different times and places, as the result of many experiments, that 'the first stages of dental caries consists in a decalcification of the tissues of the teeth by acids, which are for the greater part generated in the mouth by fermentation. The object of the investigations described in this and the following papers is to determine this ferment, and the conditions essential to its action.'"

We see from this that Dr. Miller begins just where Dr. Magitot left off, sixteen years ago. The discussion of the subject during these years has given us no

additional facts as to the essential nature of these phenomena; but the advance of thought in reference to the general subject of such investigations has been such that no man would now repeat Dr. Magitot's course of experimentation with the same end in view.

I will give you a very brief synopsis of Dr. M.'s course. And while I do so I wish you to keep in mind the object he has in view. It is admitted that decay is brought about by acids, developed, or Dr. M. supposes them to be developed, by fermentation of some kind. The object of this course of experiments is to find and examine this supposed ferment.

It is not necessary that I should describe in detail all the apparatus with which the experimenter provided himself; it is sufficient to say that all the appliances for the prevention of error were used. The first question to determine was whether or not the ptyaline of the saliva could so change starch as to produce an acid. This question was soon decided in the negative. The starch was promptly changed into sugar, but here the reaction ceased; the fluid remained permanently sweet when the proper precautions were observed to prevent the ingress of germs. This proves that the acidifying power does not belong to the saliva. It must, then, be something foreign.

Now, a freshly extracted carious tooth was taken, all food removed, the outer portions of the decayed mass saturated with a 90 per cent. solution of carbolic acid to destroy any accidental germs that might be in this portion. Then, with an instrument, purified by heat after each cut, layer after layer of the softened dentine was removed until the inner portions were reached. Then a slice was quickly conveyed to a sterilized culture medium, composed of sterilized saliva, water, sugar and starch, and placed in an incubator, together with another test tube of the same culture fluid uninfected, to serve as a check. In twenty-four hours the infected culture became acid, while the other did not. This remained constant in a sufficient number of experiments to establish the fact that the acidity was due to the infection.

From the cultures that had become acid, other cultures were infected, which also became acid; thus proving that the experimenter was dealing with a ferment that was capable of propagating itself; an organized ferment.

Microscopic examination showed that these cultures contained an organism similar to those found in the deeper layers of carious dentine, and which remained constant in their characters. Chemical examination which seems to have been carefully conducted, showed the acid produced to be lactic acid. This acid has been shown to be capable of decomposing the teeth by M. Magitot, and many others. Yet Dr. Miller goes still further, and by placing sections of dentine in his culture fluids that he has infected, finds that they are decomposed by the acid formed; while such sections placed in such fluids not infected are not changed. Thus he not only proves that an acid is formed, but that the acid is formed in sufficient amount to destroy the dentine.

This, when compared with the best experimentation previously had, marks a great advance. One point seems to have been gained. One organism has been traced thus far, and may now be said to have been proven to be able to produce certain of the phenomena of decay. But this is not all. There is much yet to be done. True, one other point is spoken of by Dr. Miller. All who have made a careful study of caries know that there is a peculiar enlargement of the tubules, which is not seen in dentine softened by acids alone. Dr. Miller has been looking for this also, and not without success, for in some sections of dentine exposed to the action of the cultures, he found the organisms crowding into the tubules, and tells us that he also found them enlarged as in natural caries of the teeth in the mouth; indeed that he had before him veritable caries, artificially produced.

This delineation of results of experimentation must have great weight in the settling of the problems at issue, especially if they are confirmed by other competent observers. There is nothing in these experiments that is not in harmony with known facts, unless it be the widening of the tubules by the crowding in of the organisms. It is known by previous experiment that this widening is not caused by the lactic acid as it exists dissolved in the surrounding medium, and I think very few will be willing to concede that the organisms can accomplish this by physical force. This point requires further investigation, and its study will doubtless lead to further discoveries. However, I think it may be explained in advance; at least the effort may serve to direct experimentation.

In a previous lecture I have dwelt at some length upon the digestive fluids of living organisms. Unexpectedly I find use for these ideas now, for they were written before I saw Dr. M.'s last article. I have explained how it is that dead bone, roots of the temporary teeth, ivory driven into the flesh, catgut ligatures, sponge, etc., are dissolved and removed by a soluble ferment. I have also shown that the soluble ferment of the yeast plant has been found and proven. Also that of ammoniacal fermentation; and how plants take up otherwise insoluble substances. Now, this widening of the tubules is a conceded fact. It is also shown that it is not done by the lactic acid in case of other experiments, nor can it be done by the physical force of the organisms, but it can, in all probability, be done by the digestive fluid of the organism. The conditions for this work of the digestive fluid are the same as that of the granulations in widening the meshes of the sponge and finally removing the last of it. As yet no soluble ferment has been demonstrated in connection with this organism; but theoretically it must exist, and if Dr. Miller should undertake to search for it, he will be able to demonstrate it speedily, and determine its coöporation in producing some of the phenomena of decay; at least determine its capabilities. This organism cannot be said to have been definitely and completely studied until this soluble ferment, or diastase, be found, isolated, and its capabilities separately determined. (Since the above was written Dr. Miller has reported the finding of this soluble ferment.)

It is by no means probable that this is the only or-

ganism that may stand in a causative relation to caries. (Since the above was written, Dr. Miller has also reported the finding of another micro-organism that he thinks capable of producing caries.)

The organism of butyric fermentation, possibly that of acetic fermentation, and a large number of others of the acid fermentations, may cause decay; nor is it by any means a settled fact that decay of the teeth may not be brought about in part by other vital processes than the acid fermentations. Of this, however, we will speak later.

Another question may arise in this matter and need explanation. I have repeatedly said that the waste products of an organism prevented the activity of that organism when collected in a certain amount. How then can this organism continue to thrive in its own waste product, and thus continuously promote caries, by furnishing more, and still more, of this waste product? Simple enough. Every chemist who has studied lactic fermentation has been in the habit of introducing some form of lime into the fermenting fluid to "fix" the lactic acid in the form of a lactate of lime, in which case it does not hinder the progress of the fermentation. In this way a much larger amount of the lactic acid may be obtained, as it is readily regained from its salts. This was learned long before this organism was found. Now, in the production of caries, the tooth presents the lime for the formation of the lactate, and thus furnishes the very conditions necessary to the continuous growth of the organism.

I wish now to turn your attention for a moment to another class of phenomena, and make some inquiry into their possible participation in the production of caries. I have already spoken of the strong probability that the otherwise normal tissues, when under the influence of certain qualities of inflammation, emit a fluid of acrid and very irritating properties. About the necks and other parts of children we sometimes see this fluid excoriating the skin wherever it touches it, seemingly acting the part of a caustic. I have already referred to the fact that dead bone, ivory driven into the flesh, sponge, catgut ligatures, etc., are dissolved and removed. This causes us to inquire whether or not a substance may be elaborated in the same manner in the mouth, that may have its quota of effect in the production of the phenomena of caries.

I was thoroughly convinced that this was the case years ago, though I endeavored to explain the results by the assumption that an acid was formed. This is entirely unnecessary. Soluble ferments do not seem to depend for their action on either acidity or alkalinity. They seem to be controlled by some other than the known chemical laws, and their action is not yet understood. We have no means of explaining them. If a piece of ivory thrust into the flesh is attacked and burrowed out in holes by a secretion thrown out by virtue of the irritation induced, as asserted by Krause, Keoliker, and other of the most capable observers of the world, why may not a tooth be attacked in the same way by virtue of an irritation of the tissues about the neck, or during the irritation consequent upon its eruption when this is unusually prolonged? As a matter of fact, it has been observed that decays are prone to occur in just such situations as tend to confirm this hypothesis.

Thirteen years ago we drew attention to this, in a paper before the Illinois State Dental Society. Both before and since that time I have given much attention to this point, and I am more than ever convinced that it has much to do with the beginnings of decay. I do not wish to be misunderstood in this matter. It is not my notion that decays are initiated by this cause alone. It is only one of the first steps by which other forces which come later are rendered operative —a means, if you please, by which the surface of the tooth is first broken, and by which organisms are permitted to find lodgment; not a means by which decay is carried on, to the complete destruction of the tooth. This effect cannot be produced except while the tissues are in contact, or in very close proximity to the part in the process of solution, for the reason that the secretion from the tissues would be dissipated in the fluids of the mouth before they could have time to produce their effects upon the tooth's structure.

The positions at which these results are seen, are: Wisdom teeth, that come through very slowly, on the buccal surfaces of the molars generally, and sometimes on the labial surfaces of the upper incisors. In case of the wisdom teeth, the fact that they are very often decayed before they are fully through the gum is especially remarked; and as a rule, if these decays are carefully noted at a very early period of their progress, it will be seen that they are different from other decays in several respects. It always has its beginning under the free margin of the gum. There is usually no change whatever in the appearance of the tooth; the eye discovers nothing. The surface seems normal, or at most the portion of the tooth appears rather whitish; but on trial with the excavator the instrument will apparently break in through the enamel prisms, disclosing a cavity of very slight depth. It often happens that the enamel may be easily scraped away over a considerable space, as though it was so much chalk. The depth will present much variation; often it is only a part of the thickness of the enamel; at other times we may find it extending into the dentine, in which it forms a veritable cavity. If there is much depth, however, the characteristics will have assumed the more usual type.

Occasionally we see this character of decay (if it may be so called) in the grinding surfaces of the wisdom teeth; occasionally in the first molar, also, where the tooth has come through very slowly, and the gum has been for a long time in a state of chronic irritation.

It is characteristic of this effect that it is as often seen on the smooth surfaces of the teeth as in the pits and grooves. No imperfection is necessary to prepare the way for this manifestation.

As I have said this takes place under the gum; is covered by the gum. Now as the tooth rises higher and the surface thus affected becomes exposed, these spots are prone to become the seat of true caries with all of its usual manifestations. However, very often caries does not take place. In this case, a whitish

spot is seen, which gradually assumes a yellowish tinge, then brownish, and finally becomes black. This result is brought about by the settling into, or the formation in, the affected tissue of the black sulphurets; as I was the first to show. (See report on dental chemistry, by Dr. H. A. Smith, Transactions of the American Dental Association, 1874, page 78.)

We see these spots every day upon the sides of the molars in every stage of coloration, from ashy white to a deep black. They are as apt to be on the otherwise smooth surfaces as in the pits and grooves. They may occur on any of the teeth, but are oftenest seen in the position named. The decays that so often occur on the labial surfaces of the upper incisors, are often, though not uniformly, of the same character.

Those decays that occur just at the junction of the enamel and cementum, in persons of middle age or past, occasionally in younger persons, seem, in very many cases, to be of the same character. Some irritation of the gum at the immediate spot seems to be one condition of their beginning. These also have some special characteristics not common to other decays. If they are closely examined very early in their inception, it will be found that the cementum has been removed, and that the margin of the enamel has become chalky; soon after this, if the case continue to progress, the gum, which till now was closely applied to the part, becomes everted so as to expose the breach in the tooth. This often becomes the seat of the most exquisite sensitiveness just at the present stage of the process, which calls the attention of the patient to the spot. Generally, however, nothing can be seen by either patient or operator, except a slight evertion of the gum, and the slight grooved appearance of the neck of the tooth, which the operator is often puzzled to differentiate from the normal form of the tooth. However, if he will carefully press the gum away (and he will find this abnormally sensitive) until he can see the root of the tooth below plainly, it will be easy to demonstrate that there has been a decided loss of substance. Trial with an instrument will develop the fact that the surface within this groove is exceedingly sensitive; the dentine is exposed. Now if the case is left to itself, this sensitiveness will continue for some weeks, or even months, and then abate; and it will be found that the case has taken on the usual character of decay. It may cease to progress and assume a dark color, or it may progress rapidly, and remain of a more or less ashey cast.

It has been our opinion that this class of decays, if that term can be applied at this stage, is brought about in precisely the same way that the root of a permanent tooth is partially absorbed on account of a chronic irritation of its peridental membrane. In other words, a soluble ferment has been called out by the irritation, that has dissolved out a part of the tissue at that point. Or, if you prefer to have it put in that way, a true absorption has taken place which forms the nidus for the future decay.

Another class of decays are very common which I have studied very closely, and which seem to be of the same character in their inception. These begin under the free margin of the gum under plates that abut closely against the teeth. These are usually very rapid in their course, evidently for the reason that as soon as the free margin of the gum is everted a pocket is formed by aid of the plate, in which fermentation can proceed to the very best advantage. It does not seem that the beginning of this decay is often after the evertion of the gum has uncovered the spot. Of course, we often see decays occur where clasps encircle the teeth that are high up on the crown. Such must not be confounded with those that begin at the margin of the cementum.

DISCUSSION ON DR. BLACK'S PAPER.

Dr. Marshall.—In Dr. Miller's experiments on dental caries, whether produced in the mouth or artificially in his culture fluids, he invariably found an enlargement of the dental tubuli, to the extent of the penetration of the affection, and that the tubuli were filled with micro-organisms.

Dr. Boedecker, of New York, found the same enlargement of the tubuli, but minus the micro-organisms, in his experiments with regard to the action of arsenous acid upon healthy dental tissue.

Dr. Black refers the cause of the enlargement in Dr. Miller's experiments under both conditions, to the action of a soluble ferment produced as a waste product by the *bacterium lactis*, and which dissolves or digests the organic portion of the tubuli, and the inorganic material surrounding it, while Dr. Boedecker refers the condition found in his experiments to inflammatory action resulting in absorption caused by the irritation of the arsenous acid.

I would like to ask Dr. Black whether he considers the conditions found by these gentlemen to be identical?

Dr. Black.—I will first say that I do not regard the results as caused in both instances by the *bacterium lactis*, but in both cases the results are brought about, in all probability, by a digestive body. The action in both cases is the same in kind, the philosophy of the widening is the same in both instances, the difference being that the digestive bodies that do the work are produced by different forms of life. In the case of Dr. Boedecker's experiments, the conditions described could only be due to the formation by the irritated dentinal fibrils of a menstruum which digests and removes the tubular wall.

In Dr. Miller's experiments, the bacteria form a menstruum which digests and removes the walls of the tubuli.

In the case of the *bacterium lactis*, a digestive body, or diastase, has now been demonstrated by Dr. Miller, the organism is fully proven to be able to perform the act of digestion, and we know that the tissues of the higher animals have the power of removing parts by what is usually called absorption, and which is a form of digestion.

It has been well shown that the pulp chamber may be enlarged in this way in cases of long-continued irritation of the pulp. Bone is also easily removed under pressure, evidently by a similar vital process—a process of digestion by means of a digestive body.

Dr. Allport.—Dr. Boedecker's experiments with arsenic upon dentinal tissue (though not yet fully

completed) were upon living tissue, and evidently prove that there was inflammatory action set up in the tubules, causing absorption of material. Dr. Miller's experiments were upon dead tissue (teeth out of the mouth), and the action seems to have been a chemical one. In the first, the process was a vital one, and may be in kind like that manifested in the absorption of the roots of deciduous teeth, the removed material being largely taken into the general circulation, which may have been "re-molecularized" and converted into new tissue, or carried off as a waste product.

While, in the other case, the action was entirely from without, and would seem to have been from acids, and independent of vital processes within the tissues. I can imagine how micro-organisms may produce a sufficiently exalted irritation of the dentinal fibres to cause absorption of material similar to that produced by the irritation of arsenic in the experiments of Dr. Boedecker.

But in either of these conditions I should expect the changed material would be largely carried off in the general circulation, the same as it is in the enlargement of the pulp cavity consequent upon continued irritation of the pulp, as suggested by Dr. Black, or the absorption of the roots of the deciduous teeth; in both cases the organic and inorganic materials are removed entire, while in caries occurring in the mouth the inorganic material only is largely removed, the organic portion remaining behind to die, be decomposed and washed away, or pass off in gases.

In the experiments of Dr. Miller the conditions are entirely external, and a purely chemical action, resulting in a simple change of the elements, and their removal consequent upon the affinity of lime for acids. Whether the fungi excrete an acid or not (and more than likely they do) is of no material consequence so long as the acid is found there; it is the affinity of lime for acids, no matter how produced, whether from a decomposition of foreign matter, or excreted by the fungi that, to my mind, produces the changed condition in the devitalized dentine.

I have, of course, been much interested in the arguments of Drs. Black and Miller. They are highly interesting, and there is little doubt that we are approaching a correct solution of this vexed question; but it will be well for us to pause before we pronounce too confidently that either of these gentlemen accounts for all the phenomena of dental caries.

Dr. Williams.—May not the enlargement of the tubules be caused by the physical force of the micro-organisms exerted upon the walls of the tubules? In the vegetable kingdom such instances are not of rare occurrence; rocks have been split, and large masses of solid material moved by the continued pressure of fungous growths.

Dr. Fredericks.—Mills and Underwood first called attention to the enlargement of the dentinal tubuli, and they presented microscopical specimens to substantiate their views. Dr. Boedecker's experiments do not prove anything. I would not put much reliance upon the observations of two experimenters. I think we are begging the question.

Some observers can see whatever they desire to see, and later their observations are proved to be worthless. May not the enlarged appearance of the tubuli be due to the methods used in preparing the slides?

Dr. Allport.—I would suggest that Dr. I. L. Susserott, of Chambersburg, Pa., be invited to speak upon this subject.

Dr. Susserott.—I am certainly very much pleased with the paper just read by Dr. Black, it proves the truth of the lines by Butler, that

> "Large fleas have little fleas,
> And these have fleas to bite 'em;
> And there are fleas to feed on these,
> And so *ad infinitum*."

Various remedies have been introduced for the antiseptic treatment of surgical diseases, the most potent of which is bichloride of mercury. As used in general surgery, a solution of 1 to 1,000 is perfectly harmless, and I do not see why it might not be used with safety and success in the treatment of dental caries.

Dr. Harlan.—The bacillus anthrax and the bacillus tuberculosis can live in absolute alcohol, and also in a 5 per cent. solution of chloride of zinc.

In order to know how to destroy micro-organisms we must study the individual organism, and apply the special agent which will destroy their vitality.

Eugenol—in the strength of 1 in 75,000, will destroy bacteria, and a weak solution will prevent the development of the spores.

Dr. Black.—I quoted an expression of Dr. Miller's saying it was unfortunate, viz: "the first stages of dental caries consists in a decalcification of the tissues of the teeth by acids, which are for the greater part generated in the mouth by fermentation." This is the same question discussed of old, of who led the pig to market, the man or the string. The string is the means used by the man, and the acid is the means used by the micro-organisms, but the acid can no more cause decay, or even exist in that position, without the organisms than the string can exist, and lead the pig without the man.

The micro-organisms that produce caries must have free oxygen. Therefore, if you plug a tooth perfectly over a little softened dentine you exclude the free oxygen and destroy the organisms. It is possible, of course, that an organism not requiring free oxygen might produce caries, but all evidence we have is against that supposition.

Dr. Fredrich—It seems to me we are still begging the question. What is the need of antiseptic treatment of caries if micro-organisms cannot exist without free oxygen? When a cavity of decay is hermetically sealed no oxygen can enter, and consequently micro-organisms cannot develop.

Dr. Marshall—It has been proved by Pasteur that there are certain forms of micro-organisms that exist without free oxygen, in fact can not develop in that medium; and it is not at all improbable that such micro-organisms may exist as factors in the cause of secondary caries.

Dr. Black closed the discussion by saying: We

must come to the point of finding specific micro-organisms. A poison for one form is not necessarily a poison for another. Only about 17 per cent. of alcohol can be produced by the yeast plant, because the excretory product of the plant—alcohol—in that degree of concentration becomes a poison to the plant and prevents further growth. This same alcohol, however, is the natural food of the mycoderma aceti. This plant produces acetic acid, which in turn will stop the growth of its plant at a certain degree of concentration. This will now become the food of other organisms. So it is, that that which is poisonous to the one is not necessarily poisonous to another. Certain diseases occur in the child that do not occur in the adult. We believe some of these diseases are produced by micro-organisms. There is some difference in the nature of the tissues or fluids in the two cases that renders the adult unfavorable soil for the growth of these organisms. This gives some hope that in the continuous round of research some means may be found of antagonizing micro-organisms without a resort to poisons, as is now done. These will certainly be different for different organisms.

On motion it was agreed that owing to the lateness of the hour the reading of the paper by Dr. Harlan be deferred, and that it be the first order of business at the session to-morrow.

The Section then adjourned.

FRAGMENTARY COMMENTS ON SOME OF THE PRINCIPAL METHODS OF OPERATION FOR "STONE IN THE BLADDER."

With Special Reference to Allarton's Method, Also in Combination with Lithotripsy, Urethro-Lithotripsy, Urethrotomia Lithotriptica, Including Besides Critical Remarks Upon the Discussion of the Progress Made in Lithotripsy and "Lithotomy" at the Late International Medical Congress held in London, England, and divers other subjects comprising the Urinary Organs.

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(CONCLUDED.)

Spasmodic Strictures, or Spasms of the Urethra.—When the bladder is to be sounded we meet occasionally with contractions, or spasms of the urethra, in the introduction of the bougie, causing great difficulty in the free motion of the instrument. Singular as it may appear, it is nevertheless true that the existence of such a spasmodic condition has been, and is still, denied by a great many surgeons. Since John Hunter first called attention to that phenomenon, most all authors on surgery, though they might have mentioned the subject, still kept silence. Their own knowledge was either very limited or they had none at all. It is indeed rare to meet with an author who has observed these spasms in more than one or another case, and it seems as if their mere mentioning of them was more for the purpose of showing that they were not ignorant of the pretended existence of such strictures. Brodie, Guthrie, Dittel, Bardeleben, Koenig and others belong to that class. Rosèr, in his surgical anatomy, calls them "a thing about which much could be said." He evidently keeps "on the fence," to use a vulgar expression, as the safe side to escape a responsible position. Sir H. Thompson, the "great lithotomist," evidently crowns ignorance in calling such spasmodic strictures of the urethra, *"a materia peccans"—"a refugium incompetenciæ"*—"an excuse used to cover one's own want of skillfulness to enter a catheter into the bladder." Not quite so rash, Mr. Thompson! Among the few authors I have met with, who do not treat these spasms as doubtful accidents, are the late C. Hueter and Esmarch, of Kiel, of blood-saving fame. The latter declares to have experienced such spasmodic strictures "dozens of times almost every year." Indeed, what a very nervous people these inhabitants of Kiel and surroundings must be. I myself have during my practice here met with those spasmodic strictures of the urethra in but few instances, that is, of such spasms as caused a real obstruction to the entering catheter or bougie, and which might have been taken for strictures of an organic nature, whilst contractions of a short standing, I have more frequently met with. They are also caused in a small degree by the application of the galvanic current, which, moreover, is an evident proof of the existence of muscular fibres in the urethra, though equally denied by a good many surgeons. It is hard to believe, though nevertheless a fact, that a great number of anatomists, besides surgeons, up to this day are still in doubt about the existence of such muscular elements in the urethra. The bladder, no doubt, is a muscular sac, surrounded by muscles, as for instance, the mighty detrusor. The prostate is furthermore a muscular ring, a sphincter, and both detrusor and sphincter are, according to Henle, in *a constant active tonic condition.* Might we then not, and very properly, question why the balance of the urethra should be so entirely bare of all muscular elements? It may be difficult to dissect the urethral muscle, a continuation of the prostatic ring, but that it exists and causes the spasmodic contraction of the urethra, and mostly so at the pars membranacea, aside of the compressor urethræ, cannot be doubted for a moment. Muscular fibres, and strong ones besides, do exist here, the many denials to the contrary, notwithstanding. Most all anatomists admit one thing: that the space between the two layers of the deep pærineal fascia, the fascia pærinei propria, or capsula-pelvis urethralis, after Luschka, contains sufficient muscular fibres. We have then to admit two small, flat muscles extended between the ramus ischio-pubicos, of which one, the *compressor urethræ Guthrie's*, is situated *above* the urethra, while the other, the *constrictor isthmi urethræ*, lies *beneath* that organ (to both of which muscles Guthrie has applied the name "*compressor urethræ*"). By the activity of

both muscles the urethra is compressed, and if an instrument is introduced, it will be held firmly; or if by a reflex action from the sensitive nerves, those muscles should be called into action, spasms may be produced, resisting the introduction of the instrument and resembling the existence of organic strictures. Such happens mostly at the pars membranacea. These reflex spasms of the m. compressor urethræ are involuntary, beyond the control of the patient's will. *Wilson* named the muscular fibres surrounding the pars membranacea, the *m. pubo-urethralis. Amussat* gave them the name *pars muscularis urethræ*, and *Krause* described them as *circular fibres*. Here then at least are some noted anatomists refusing to plead "a general denial."

The surgeon, in entering a bougie or catheter, ought to take into consideration the disposition of his patient. If of a nervous temperament, and one who probably never had an instrument in his urethra, in such a person the irritability of his urethral nerves may be so exorbitant that at every minute he will grasp at the instrument. It is an involuntary, irrepressible conflict, in which the will becomes totally routed. In such a case the surgeon has to use the utmost care to establish the diagnosis, and avoid being too hasty in predicting the presence of organic strictures. In meeting with such an obstacle any and every force to penetrate with the instrument any further is to be interdicted, because pain and the spasms would thereby only be increased, and a laceration or a false passage be established. Under a weak but steady power, holding patiently the point of the instrument against the stricture, the spasms in most instances will soon subside, and the resistance disappear. In such nervous subjects a subcutaneous injection of morphia is best applied previous to another introduction of the instrument. Ice applications to the pærineum may also be of service. In some cases, and mostly so in irritable children, narcotization with chloroform may even become necessary.

There are cases on record where death has even resulted from the introduction of a catheter, and more frequently do symptoms happen resembling the algid stage of an intermittent fever, which very improperly has been called "*urethral fever*," though no rising of the temperature happens.

All these are proofs how careful the surgeon has to be in meeting with such persons, and where he is obliged to enter an instrument into the urethra. The mischief ignorance and stupidity may cause in spasmodic strictures, principally consists in the establishment of *false passages*. I have had ample opportunity to become acquainted with such lamentable proofs of malpractice. What surgeon, even of a limited practice and experience, who, if he has not had the misfortune to cause a false passage himself, will not have met occasionally with such proofs of unskillfulness? And who, in falling in with one or another of such cases, will not have become aware of the difficulty of introducing the catheter, and the more so if, in his manipulations, he should meet with the simultaneous presence of spasmodic strictures? Such obstructions, often seemingly insuperable, suffer hardly any comparison with any other obstacles existing in a surgical operation. They offer a condition wherein the greatest patience, endurance and perseverance are demanded. Very properly, therefore, said one of England's greatest surgeons, Liston: "The operation of introducing a catheter through what has been called an impermeable stricture, is, without doubt, the most difficult in the whole range of surgical operations, and demands all the prudence, science and skill of a master." And what of that difficulty and mastership if such a case should be associated with one or more false passages? Spasmodic strictures may happen in the urethral channel as far as muscular fibres extend. If a metallic bougie is introduced into the urethra, replenishing its lumen, so that the walls are in close contact with the metal to which the positive pole of a galvanic battery (of about ten elements, Daniels) is attached, while the negative pole is placed somewhere on the body of the person, the bougie thus located in the urethra will after awhile be held so firmly that its removal without causing any injury to the mucous membrane of the urethra can only be accomplished, and in an easy manner, by exchanging the poles of the battery, attaching the negative pole to the bougie where the positive one had been before, producing the tight grasp of the contracting muscles of the urethra. The degree of contraction increases the further the point of the bougie is pushed towards the bladder, or with the increase of muscular fibres, while the contraction becomes weaker toward the meatus, and ceases totally just behind the glans penis.

Without the presence of muscular elements that phenomenon would be unaccountable. In view of the opposition which here exists, the total denial of the existence of muscular fibres in the urethra, it must, indeed, look strange that no author has ever mentioned this phenomenon, and the more so since the galvanic current there exist still other means to arouse the contractility of the muscular elements. If a "*sound, a double courant*" occupies the urethra and a stream of ice cold water runs through the instrument for the space of ten or fifteen minutes, the sound will also be grasped, and so tightly, that it requires some care and time to retract it without causing injury to the organ. And the degree of contraction corresponds here also with the length of the urethra occupied by the sound or the increase of muscular fibres towards the bladder.

The Urine.—Though a great deal has already been said of that liquid, still its importance may well deserve a special chapter.

In all operations comprising the urinary tract, the dogma of the noxious action of the urine, when coming in contact with wounds has played and still plays an important role. Most all surgeons are endeavoring to find means and ways to get rid of that, to them, almost unexceptionally dangerous material. Proofs of that *ignis fatuus*, the urine, if coming in contact with a wound can be met with in the works of many authors, especially gynæcologists. Thus *Wutzer*, of *radical cure of hernia* fame, in operating for vesico-vaginal fistula perforated the bladder above the symphysis pubis, torturing his patients by confin-

ing them on knees and elbows during twelve days, for the sure and constant removal of that same inimical liquid, the urine, to obtain, finally, after a dozen unsuccessful operations, and some cuticular gangrene on the knees of his patients, a complete failure. But at a much later period, and most conspicuously, could that fear of the urine be observed by Simm's invention of a self-retaining catheter, to keep the bladder constantly empty and the wound protected against that noxious liquid, the urine. The real action of the urine on one side, and the existing confusion and ignorance on the other, call, therefore, for some further elucidation.

It has been asserted that urine coming in contact with incised wounds, would prevent union by first intention. It has also been admitted that urine, by infiltrating the tissues of incised or lacerated wounds, would produce necrosis and gangrene, and by infiltrating the pelvic cellular tissues cause even the death of the patient. Such, at least, was the generally admitted dogma, till the late Prof. G. Simon, of Heidelberg, Germany, in 1862 published his experiments, in which he proved that the sweeping assertions of the noxious effects of urine had no foundation of fact on which to rest. Simon showed in an incontrovertible manner that urine of an acid reaction was an entirely innocent liquid, and that only to an alkaline urine, or one in a state of decomposition, the noxious influences could be attributed. Simon established further, by numerous tests, that it required from five to ten days before an acid urine having been in contact with living animal tissues would turn alkaline; and that an acid urine, though having been in contact with dead animal matter, or having stagnated for some time in the living subcutaneous cellular tissues, did not became pernicious to that tissue as long as it retained its acidity. On the contrary, it seemed rather as if such acid urine, probably by its saline constituents, acted more as a preservative. Necrosis and gangrene of the tissues, so often observed in penetrating wounds of the urinary organs, of the bladder, or urethra, when a great quantity of an acid urine had infiltrated the tissues, could not be explained as a chemical, but as a mere mechanical action of the urine. In such an action the blood vessels nourishing those parts would be compressed or lacerated, in consequence of which gangrene might set in. The faulty interpretation of these facts mainly caused the fable of the pernicious property of the urine. The same extensive gangrenous destruction might be brought on by using large quantities of pure water, if only a certain pressure on the nourishing blood vessels could for some time be maintained by them.

Unaware of the experiments of Simon, I had called the attention of the profession to the innocuousness of a healthy normal urine. It so happened that in the treatment of a case of vesico-vaginal fistula, I was forced by circumstances to relinquish the seemingly well established rule of the after treatment, to retain a catheter in the bladder. Again disregarding that rule in the next operation, to find out if it had been a lucky accident, or if the use of the catheter could be dispensed with without injuring the result of the operation, it became with me the rule, instead of the exception, to dispense with that most annoying part of the treatment—the retaining of the catheter. The experiments of Simon, which meanwhile had come to my knowledge, taught me the reason why, and from that time I took the precaution to operate only in the presence of an acid urine, and obtain the same success as formerly under the old rules of the protecting catheter.[1]

The investigations and experiments of Simon have been of the greatest importance in the operation of cystotomy; in fact, wherever an alkaline urine may come in contact with wounds of the urinary tract. The urine ought, therefore, always to be examined previously to an operation on those parts, and no operation ought to be undertaken before that liquid has been made acid. It is then that the most scrupulous and thorough methodical antisepsis be employed by irrigation of the bladder and urethra with 3 per cent. phenol water. Many an operation with a probably fatal exitus would, under an observation of this important rule, meet an entirely different issue.

Bigelow, in the description of his method, has not given any special preparatory treatment. It is only after the operation that he wants the bladder to be washed out with "mild antiseptics." But whenever antiseptics are required, it will certainly be inopportune to use them in a "*mild form.*" In a wound of the urinary tract phenol water of at least 2½ to 3 per cent. ought to be freely and frequently used, especially in the presence of decomposed or alkaline urine, where the latter could not first be made acid. Bigelow himself states that: "The deep urethra be even less tolerant to injuries, and that he had even lost four such cases by death." The wound of an organ which, under the scrupulous attention here given, promises almost absolute security against any serious or fatal issue! But if Bigelow thinks that "strips of the mucous membrane of the bladder might be turned off with immunity," he will be greatly mistaken in case any of those fearful complications as a "surgical kidney" or chronic cystitis, or an alkalinity of the urine even, should be present. The important question about the chemical composition of the urine, as well as the danger arising from the setting free of certain micro-organisms enclosed in a stone by even the least lithotriptic efforts, seemed to have entirely escaped him. All that Bigelow has to say about that important liquid, the urine, is that "a most troublesome condition to be met with consisted in the presence of a certain mucous substance causing tenesmus, and which could not pass through the catheter."

Chronic Cystitis.—This dreadful disease has already been mentioned on several occasions, associated with and without a simultaneous affection of the kidneys, as pyelonephritis, etc. It happens more frequently in people of an advanced age, with and without the presence of a calculus. It is a very re-

[1] Simon, in an essay of his, alluding to a publication of mine, called me "the only representative American" who had dispensed with the catheter; but at the same time considered it strange that I (at that time) still hesitated to give that instrument up for good. Simon was misled by a statement which had only reference to a special case. It was evident that he had mistaken the sense of the statement; still, I did not consider it of sufficient importance to correct the error into which he had fallen.

sisting evil and is accompanied with a good deal of pain. In most cases there exists an enormous increase of the prostate, sometimes with retention of urine. The latter is muddy, and of neutral, or oftener of an alkaline reaction, and the patient has a constant desire to empty the bladder, but with an inability of discharging its contents. The best method of treatment here consists in frequent introductions of large metallic catheters every three or four hours, and injections of warm water containing one-half per cent. to one per cent. of sulphate of zinc, of a weak solution of acetate of lead, or frequent irrigations with 3 per cent. phenol water; also the internal use of an alkaline mineral water.

The strictures which are observed, are frequently of a spasmodic character, without the least sign of an existing inflammation. But chronic cystitis may also be complicated with real and constant strictures of the urethra. In such cases I have observed external urethrotomy (Boutonniere), with a subsequent introduction of a short, straight metallic catheter kept in the bladder for some time, of great value, yet I hardly think that a better treatment could be selected. I have performed the "Boutonniere" sixteen times, and in some of the cases had as many as six and eight strictures, accompanied with abscesses and fistulas, on and around the scrotum. In several of these cases hardly the finest bougies could be passed through the urethra. In one of these cases there were eight abscesses with four fistulas, comprising the scrotum and its surrounding parts. What influence an incision into the urethra exercised upon the dilatation of that organ could be experienced here by entering the largest bougies, where previously only the smallest were with difficulty introduced. In some cases the metallic catheter was retained six weeks till the last fistula had healed. Where of late, irrigations with phenol water were frequently used, I in former times was in the habit of injecting and washing out the bladder with chamomile infusions, adding borax or benzoic acid, and occasionally in aggravated cases a strong solution of nitrate of silver 1 to 8. Serious as some of the sixteen cases had been, not a single one was lost by death.[1]

Renal Calculi Passing Through an Ureter.—The most dangerous and pain-causing renal calculi are those which, be it by their large size, form, or shape, in passing through one or another of the ureters become arrested there or implanted. They may lacerate the mucous membrane, causing inflammation, abscesses, and produce symptoms resembling the most intense, violent colic. Such an abscess may, in breaking through the wall of the ureter, discharge its pus into the abdominal cavity and cause death under the symptoms of marasmus, a case of which I once witnessed. Such renal calculi may also be arrested in the urethra, produce a local inflammation with its sequelæ, involving even the cellular tissues of the scrotum and the penis.

I once observed such a calculus passing through the left ureter of a woman, and which passage lasted three weeks, causing an almost constant but moderate "colic," which of course did not yield to medication. The woman being pregnant at the time, the pain was first wrongly interpreted. Nevertheless, suspicion being aroused, I ordered her to yield her urine exclusively in the urinal and pay attention if no stone should come away. One day she heard some hard substance drop into the vessel, which proved to be a smooth, oblong renal calculus, measuring 10 mm. in length and 6 mm. in width. From the time of the stone's discharge all pain subsided. Small as the channel of an ureter is, its muscular fibres are, like those of the urethra, of great extensibility and powerful contractility, ejecting the urine with a great force at times. In two cases of vesico-vaginal fistulas with an everted bladder, I observed the urine to be discharged alternately from both ureters in solid streams and at considerable distances.

A three years old boy was one day brought into my office suffering from enuresis and intense pain in his over-extended bladder, while his mother stated that previously the boy had suffered from "a mighty pain" in his left side, which had lasted over a week. Entering a catheter into the meatus urethræ, I met with a hard substance behind the glans penis, well implanted in the mucous membrane. Removed with a small metallic earspoon, it turned out to be a renal calculus of uric acid. The urine was muddy, alkaline, and contained pus. Some blood followed the extraction of the calculus. I injected a 3 per cent. solution of phenol into the bladder and urethra, ordering the latter to be washed out frequently. No serious consequences followed. I place some weight upon this, because I saw another such case where the calculus had perforated the urethra after obstructing the same for some time, and where no antiseptics had been used, ending fatally. The history of the boy's ailment, first given, left no doubt that here again a renal calculus had been temporarily arrested in its left ureter, and finally had become implanted in the passage through the bladder in the urethra, where, forming an abscess, it would soon have perforated the urethra. By the constant irritation the calculus had caused in the urethra, the boy had fallen into the habit of pulling the prepuce to a length of 4 ctm. (1½"), which called for circumcision.

One of the greatest agonies and sufferings I ever have observed was in a man of forty, with a calculus implanted in his left ureter. (Was it but accident that all the cases which came under my observations happened in the left ureter?) At several times on entering his room I found him lying on the floor, which showed the impression of his finger nails. That painful condition lasted five days, during which time he had almost constantly to be kept under the influence of chloroform and morphine.

Urinary Concrements.—Calculus in the human

[1] It is known that phlebitis and pyæmia have often followed neglected or badly treated cases of chronic cystitis. There has lately (1881) arrived in this country from France a certain Dr. Declat, who in some enthusiastic manner, proclaimed his ability "to cure pyæmia with his never failing preparations of carbolic acid," which he applied internally and in subcutaneous injections, and in quite large doses. He also claimed the priority of the aseptic treatment, calling Lister a plagiarist. If this new Messias of antisepsis would exchange the role of the alchemist and make known his wonder-doing compositions, he would act with more propriety and becoming a professional scholar, earning a greater reputation and with more "*eclat*" if his assertions should prove to be true, than at present, where no conscientious physician or surgeon will make use of his patent medicines, in having no other guarantee but the doctor's mere assertions and his own puffing for notoriety's sake.

bladder, excepting those of phosphatic salts, is of rare occurrence in the city of New Orleans, as far at least as the stone's origin is concerned. The printed reports of our Charity Hospital of ten years from 1871 to 1881, with over 55,000 patients, do not mention more than five cases of "stone in the bladder;" two among the whites; three among the colored people. (Though I am constrained to say, that great reliance cannot be placed upon these hospital reports, which at that period, at least, had been made up in a very loose and unsatisfactory manner for proper statistics.)

During a practice of thirty-two years in this city, I have operated on fifteen cases of stone and have assisted in six of others. All the cases happened among whites. With the exception of the children to the number of five, none were natives of the soil.

From the frequency of the disease in certain countries or localities, there can hardly exist a doubt that some geological elements, or conditions of the soil, have to account for the frequency of these concrements, at least so far as those are concerned which originate in the kidneys; whilst calculi originate in the bladder, the phosphatic stones may happen anywhere, their formation depending from causes and conditions unconnected with clime, soil, or food. In Germany, near the river Rhenus, where a great deal of sour wine ("Maselwine") is consumed, lithiasis is almost unknown, whilst in other parts of that country stone in the bladder is a most frequent ailment. It would no doubt be of great interest to solve the question: to what elements the frequency of the disease has to be attributed.

The chemical composition and physical character, such as size and form of the calculus are important factors, the knowledge of which will in part direct the action of the surgeon, in the selection of the method of operation for the stone's removal. With regard to the nature of the calculus, which equally plays a role here, we may discriminate between two classes of calculi, *renal* and *vesical*. In one class, the calculus may cause a disease of the bladder, in the other the disease may produce the calculus; in one the disease ceases with the stone's removal, whilst in the other the disease remains and affords a separate treatment. Among the compositions of the different calculi we have *uric* and *oxalic acids*, and its salts; besides *phosphates*. The latter are most frequently met with in concrements which have their origin in the bladder, or form to a great extent the outer shell of renal concrements.

Dr. R. Ultzmann, of Vienna, Austria, classifies the urinary concrements in two groups. In the first he counts the *urates*, *earthy-phosphates* and the *cystin* stones, which if free and not enclosed in diverticles present a type of three diameters. In the second class he enrolls the *oxalates* with a type of two diameters. The author views these concrements as a crystallization en masse; asserting that these diverse elementary bodies, even in such a mass crystallization, preserve their characteristics, according to which *uric acid*, *cystin*, and the *phosphates* present the three axes, belonging to the *rhombic system;* while the *oxalate of lime* belongs to the *quadratic system*. (The concrements so very rare as the xanthin, indigo and urostealith he has not mentioned.)

Ultzmann compares the urine with a mother liquid, out of which uric acid will be precipitated, if there is more of it in the urine than it is capable of keeping in solution, or, if too much free acid has been formed. The respective concrements here have to be considered as diagnostic signs of importance. But what is also, and not of minor interest and import to the practical clinicist and physiologist, is his method common to the geologist and mineralogist, of grinding the concrement to such an extra thinness that it can be examined under a reflecting light by the microscope. Thus has Ultzmann originated the doctrine of the *microscopical physiography of the urinary concrements*. These grounded stone segments present not agglomerations, but real mass crystallizations subordinated to the crystallographic laws; and the results obtained by the author have confirmed the correctness of his views of the origin of these concretions in the urinary tract. Every crystallization inculcates the presence of a mother liquid inside of the urinary apparatus. These conditions are fulfilled if the urine contains an abnormal mixture of too much acid, or alkali of too much uric acid, etc. Under these conditions the concrements originate either already in the kidneys, or directly in the bladder.

Detection and Recidives of Calculi.—Small calculi in a full bladder are often difficult of detection, and if detected, the catching of them may be still more difficult. Exceptions to these facts, as for instance of the distinguished "stone-cutter," Sir H. Thompson, who, as he himself tells us, finishes the whole operation of lithotripsy, from beginning to end,—catching, crushing and evacuating the fragments,—all in the average of six minutes, are rather rare specimens of an uncommon dexterity! It affords a great *tactus eruditus* of a surgeon's fingers in exploring a bladder to detect by palpation a small calculus, and the ears, if laid under contribution, to hear the sound of striking a concrement with a bougie or catheter, have to be not less acute. Quite different, besides, will it be if the calculus should be enclosed in a diverticle of the bladder. In such an eventuality it may remain and grow till it finally becomes detached by its own weight. One of the best pathognomonic symptoms of the presence of a calculus, if not enclosed in a diverticle, consists in the instantaneous arrest of the flow of urine in the act of being discharged; though it is not so very rare that its presence may escape the detection of both the patient and the surgeon.

In detecting a calculus with the help of the endoscope and the electric light, I have no experience; and I believe that a calculus in no other way discernible, can hardly cause sufficient trouble to require such a fashionable contrivance.

Recidiva of Calculi may happen after any operation for stone, be it cystotomy, lithotripsy or urethrolithotripsy, though it may be difficult to say after which method it has happened more frequently. Thus Lisfranc has repeated the operation of cystotomy twelve times on the same patient; Civiale seven times; Benno Smith and Weigmann have collected

155 cases of such recidiva following most all the operations of cystotomy; sufficient proof that it is not always the fragments left behind in the operation of lithotripsy which can be accused of the reappearance of calculi after that operation. It rather seems to be a certain disposition of the system which causes these recidiva, and against which, so far, no treatment has been found to be of any avail. The frequent return of such concrements after cystotomy ought, therefore, to caution against a hasty reproach of the operation of lithotripsy on account of fragments left behind, and which, at the same time, would imply an unjust accusation of the operator. The etiological elements of such recidiva may, indeed, be manifold. Thus the concrements may be formed in the kidneys and be from there transferred to the bladder, where they continue to grow; or an alkaline condition of the urine, whereby a precipitation of insoluble phosphates "*placages phosphatiques*" may follow. They may also follow from fragments left behind in an operation, or from pieces broken off during the extraction of a calculus, or from pieces of a broken catheter or bougie, or from sharp-pointed foreign bodies which have entered the bladder from some interior parts, from fragments swallowed by accident, such as pins, nails, needles, which have come into the bladder through the urethra, as is occasionally the case with children; also, from blood coagula, from an over-distension of the bladder with urine; from paralysis, hypertrophy of the prostate, or strictures of the urethra, etc. All these manifold factors may, at one time or another, be the cause of the formation of a calculus, with a foreign body as the nucleus. Vesico-vaginal fistulas have also been mentioned among the causes of stone. One such case came under my own observation, where a fistula and stone existed together, but here it became more probable that the stone was rather the cause of the fistula, and not the fistula the cause of the stone; and its nucleus proved that it had its origin in one of the kidneys. During the delivery of the woman the presence of the stone had been overlooked, and no doubt became the cause of a partial gangrene of the bladder and vagina, causing the fistula. The nucleus consisted of uric acid and the outer parts of phosphates. The stone had the size of a large pigeon's egg.

APPENDIX.

VESICAL CALCULI IN THE URINARY BLADDER OF AN HYPOSPADIAS—A SURGICAL CURIOSITY.

Above I have named different foreign bodies which occasionally might be met with in the urinary bladder of man, forming the nucleus of certain concrements; but seldom, if ever before, has a surgeon come across a case in which the nucleus of a concrement consisted of so singular an object as in the case under consideration.

The subject of this interesting narrative was a musician, about 45 years old. A congenital deformity which stamped him an hypospadias, with the urethra of the pendulous portion of the penis left open; the latter organ presented a *membrum virile cum impotentia generandi et coëundi*. That penis reminded me of an operation said still to be performed by the inhabitants of some of the islands of the South Sea, as also among the Australians and Esquimaux—people who, in regard to culture, stand probably yet at the same prehistoric footing as the so-called *neolithic period*. I say it reminded me of what these Australians call the *mica operation*, which consists in cleaving the lower wall of the urethra for the purpose of producing sterility, and which operation they perform with a stone knife, a piece of flint they sharpen, and with which they are said to perform alsc laparotomy and even trepanning.

The morphological interest in our musician's case was heightened by the fact that with the urethra left open to the root of the penis from the first period of fœtal life, that membrane had grown to an extraordinary large size and length, measuring in its relaxed condition 14.5 centimetres (near 6″) in length. The opening at the root of the penis was not larger than 8 mm. in diameter, and that opening, which corresponded with the locality of the caput gallinaginis, proved the man's misfortune. Through that opening our musician had been in the habit of playing with the cork of a wine bottle, "*pour saulager la nature*," est modus in rebus; and as none are so daring as those who have long been accustomed to place their dependence on their own exertion—it being the distinct mark of genius, that it lights its own fire—our prestidigitator one day in thus pursuing the even tenor of the way of his Anacreontic desires, in playing a fortissime experienced on himself the truth that "what is considered happiness to-day may get misery to-morrow," and, like the pitcher that goes constantly to the well, is likely to break at last; so the cork, escaping once his fingers, vanished between wind and water to that bourne whence no traveller ever returns, except it be by the hand of the sympathizing surgeon.

It is properly said that "a rolling stone gathers no moss," but a rolling cork in a vesica urinaria may gather phosphates and become an annoying peregrinarian calculus. Hugging the delusive phantom of hope to play himself the successful accoucheur, our musician had at various times tried, by introducing wires, tape, fiddle-strings, etc., to get hold once more of the fugitive stopper, but frustraneously. He finally discovered how truly Rabelais had said, that "the attempt to run a wind-mill by the wind squeezed out of a dead ass, be a futile enterprise of an impracticable genius," and he came to the conclusion that a good musician might turn out a very poor surgeon. He felt some embarrassment to acknowledge his foolishness. But as the man who tells one lie will have to tell a dozen more to sustain the first, he was soon caught in his own net, and forced to make a full confession.

The operation was decided upon. When the patient was under the full influence of chloroform, I succeeded, in an easy manner in extracting, with a calculus spoon, entered through the natural opening, the incrustated cork. But, from its size, no doubt could exist that another and even a larger piece was still behind. Entering the instrument again, that piece was soon grasped and brought to the entrance

of the opening. But it was impossible to extract it in that manner; a forceps and the percuteur were both tried, but with no better result. The cork could not be compressed nor crushed; therefore the opening was enlarged with the long knife of Vacca Berlinghieri, the incision being made towards the neck of the bladder, when, with a forceps, the other piece came away quite easily. Both pieces were thickly incrustated. No doubt, by his efforts to get the cork out the musician, in using the wire, had cut the soft cork in two. The operation was not followed by any untoward symptom, after the bladder had been well irrigated and washed out. The patient was not even confined to bed for a single day. Who was happier than our fiddler, when once more he held his dear and unlucky cork in his hands? A proposition of doing away with the tempting opening in restoring a normal channel, he nevertheless refused. I never saw him again.

BRIEF NOTES OF THREE CASES IN WHICH PREMATURE LABOR WAS INDUCED.

BY AUGUSTUS P. CLARKE, M.D., CAMBRIDGE, MASS.

Read before the Cambridge Society for Medical Improvement, Dec. 22, 1884.

In one case where the woman was seven months pregnant, and where premature labor was urgently demanded, I used a carbolized sponge tent. This was left in for twenty-four hours, when it was removed and a second one for the same length of time was introduced. I also used a third tent, well carbolized. After the removal of each tent I disinfected the parts with a 2 per cent. solution of carbolic acid. After the use of the third tent, labor pains began at irregular intervals, and were assisted by digital dilatation of the os uteri. On the fourth day the fœtus (male) weighing six pounds, was expelled alive, and it survived, and the mother, though suffering from some symptoms of septicæmia, recovered, but was unable to nurse her child, owing to the want of a sufficient quantity of milk. This lady had been married some ten years previously. The first time I met her was when I was called to assist Dr. Chas. H. Allen, formerly of this city, in her delivery. The doctor had been with her for the most part during thirty-six hours, and although the os uteri was well dilated, and the long forceps could be applied, yet we found it quite impossible to extract the child without resorting to the operation of perforating the head, and even after this was done, we had great difficulty in bringing down the shoulders. After the placenta was removed, we found that the conjugate diameter of the pelvis was hardly 2½ inches. There was a marked distortion of the right ramus, thus lessening the iliac diameter; besides, the tuberosities of the ischia more closely approached each other than in a normal case. At that time, 1869, we were both satisfied that our patient was unable to bear a living child at full term, and the matter of the induction of premature labor in a subsequent pregnancy was considered. Some three years later I was again called to this patient, who was again in labor for the second time. The os was dilating and the pains were frequent and strong, but no descent into the pelvic cavity took place. I succeeded at last in accomplishing her delivery, but the child had to be sacrificed as before. In June, 1874, I was again consulted by this lady, who was about five months pregnant. The patient was otherwise in good health. Ballottement could be distinctly felt. I then advised my patient not to allow her pregnancy to continue to full term, but to submit to the chances of a premature labor induced at seven months. Accordingly, on August 15 (1874) following, she submitted to an operation resulting as above detailed. Soon after this her husband died, and my patient escaped further dangers of a married life.

The next case to which I was called was that of Mrs. E., a Scottish lady aged twenty-eight years. She was delivered at the age of twenty-four years of a stillborn child, before she emigrated to this country. She said her labor was a tedious one, and was terminated with instruments and by the inhalation of chloroform. After coming to this country, while in New York city, she miscarried twice. Her uterus was sharply anteflexed, and she suffered more or less from dysuria. This was in October, 1877. September 1, 1878, I was called to attend her in labor at term. The presentation was normal and of the first position. The labor was unusually prolonged, owing to the narrowness of the pelvis. The conjugate diameter was scarcely 2¾ inches, and the iliac diameter seemed insufficient for the exit of a living child at full term. There was a contraction at the outlet of the pelvis. Forceps were applied, but the child was stillborn. The patient made a rapid recovery. Eight months afterwards she became pregnant, May 1, 1879. I advised her as in the case of the other patient, not to allow the pregnancy to continue longer than seven months. Dec. 1, 1879, I inserted a sponge tent into the os uteri; this was followed by a chill and afterwards a good deal of constitutional disturbance. The tent was removed after the lapse of twenty-four hours, and I waited until the third day, when I applied another carbolized sponge tent. This brought on the same constitutional disturbance, but on the fourth day some fugitive pains occurred, and I resorted at intervals to digital dilatation. The fœtus was born on the evening of the fifth day, but it was feeble, and it died on the third day after its birth. The mother suffered a good deal from what appeared to be septicæmia, evidently superinduced by the application of the sponge tents. The patient finally recovered.

In another case of narrow or contracted pelvis, where the conjugate diameter did not exceed 2¾ inches, and in which I determined to induce premature labor, at about seven and a half months, I used a medium-sized (No. 14, French scale) olive tip bougie, introduced carefully while the patient was in Sims's position. The bougie was introduced without rupturing the membranes, and passed across the fundus of the uterus in a spiral or curved direction, and then left for twelve hours, when labor supervened. The labor was completed in six hours, and the infant

was alive and did well. The mother made a good recovery. This case occurred in October, 1880. The mother was aged twenty-seven years, and had been married six years. She was delivered of a child (female) stillborn, at Boston Highlands, Oct. 27, 1876, and another, stillborn, at Worcester, Mass., some two years afterwards. It was from her husband and from her physician, the late Dr. Henry Clarke, of Worcester, that I learned the circumstances of her delivery.

The plan of inducing premature labor by the introduction of a flexible gum elastic bougie, reported in the *Retrospect*, No. 71, p. 190 (by John C. Lucas, Esq.), is evidently a safe and easy method. My experience in the use of sponge tents, even when thoroughly carbolized, for dilating the cervix for any purpose whatever, is unsafe and often leads to irreparable mischief. For a long time I have abandoned their use altogether. The use of a flexible gum elastic bougie is more scientific. The bougie is cleanly, its presence in the uterine cavity, across the fundus, after a few hours, will often excite healthy and normal uterine contractions. And in any case where any unpleasant or any constitutional disturbances arise from its presence, it can be readily removed by the attendant, or the patient herself, before alarming or serious symptoms supervene. The bougie is also applicable in cases in which it is desirable to induce abortion for the relief of obstinate vomiting of pregnancy, that sometimes threatens the life of the patient. I have used it for such a purpose, and have found it a most valuable means of emptying the uterus of its contents. Digital dilatation, when carefully and judiciously practiced, is also a most valuable means in any case where the emptying of the uterus is urgently and speedily demanded.

An important consideration in a case where the induction of premature labor is required, is to ascertain when the time has arrived beyond which pregnancy should not continue. This can only be decided by a careful consideration of the whole history of the case. From my experience in the above cases, as well as from my general obstetric practice, I would state that in no case should the induction of premature labor be undertaken until after a most thorough study or knowledge has been gained of a previous pregnancy, or pregnancies, for it is absolutely impossible to obtain any definite and reliable knowledge relative to the dimensions of the pelvis until after labor is well advanced or immediately after it has been completed.

MEDICAL PROGRESS.

ANATOMY AND PHYSIOLOGY.

CONGENITAL ABSENCE OF THE LEFT LUNG.—Dr. E. Theremin (*Rev. Mensuelle des Maladies de L'Enfance*) gives two cases of this occurrence, which is so rare that it has never been determined in the living subject, and out of thirty thousand autopsies made in the past twenty-five years at the Maison des Enfants-Trouvés, at St. Petersburg, only these two cases were noted. The first case lived for eleven days, and died after symptoms of fever, accelerated respiration, dullness on percussion, bronchial souffle, and disseminated sub-crepitant râles. The body appeared normal in structure and conformation, except a rudimentary development of the eyeballs. The autopsy showed intense hyperæmia of the brain, hyperæmia and nearly complete hepatization of the right lung, hyperæmia of the liver and spleen. The second case lived from February 9 to May 17, over three months. Cyanosis was present from the first, but became in time very little marked and not constant. The heart was considered as normal; a slight cough called for an examination of the chest, when mucous râles were heard over the right and *left lungs*—nearly complete dullness on percussion over the left lung—later on in life fever set in, with signs of pneumonia of the right lung, marked cyanosis and death. Nothing abnormal was found in the autopsy as regards the other organs and tissues of the body, in structure or conformation, except what will be referred to.

In comparing these two cases great similarity is seen in the anatomical disposition of the lung, of the heart, and of the circulation of the blood. In both cases there was a little cartilaginous enlargement in the position of the left bronchus, one single pulmonary artery, and one single pulmonary vein, which communicated with the vena azygos, and thence with the vena cava superioris. In neither case did the left auricle receive any pulmonary vein; the foramen ovale and the canal of Botal were narrowed or obliterated. The unique right lung, greatly developed and incompletely divided into lobes in the second case, gave an arterial blood, which, mixed with the venous blood, produced a constant cyanosis. The large caliber of the venæ cavæ and pulmonary artery, and the hypertrophy of the right auricle and ventricle, contributed to the increase of the intensity of the general cyanosis. Both children were small, and badly nourished from their birth.

The notes taken during the life of these children, by two different physicians, show that the vesicular respiration also extended to the left in the posterior portion of the thorax, and prove that respiratory murmurs of one side may extend to the opposite side, in cases where the propagation is favorable.

MATERIA MEDICA AND THERAPEUTICS.

ON THE RARER ACCIDENTAL EFFECTS OF SALICYLATE OF SODIUM.—Under this title Dr. J. Dreschfeld gives, in the *Medical Chronicle*, the details of a case of a female patient, æt. 18, suffering from nephritis, after an attack of diphtheria. For five days of her treatment for this affection, she was given salicylate of sodium, ten grains three times daily. On the third day the temperature suddenly rose from 97.9° (axilla) to 103°, pulse from 75 to 120; there was severe headache, drowsiness, dry and brown

tongue, nausea and vomiting. On the fourth day the patient was worse, with pain in the left lumbar region, and enlarged spleen; on the fifth day vomiting had become incessant, great dyspnœa, temperature 103.8°, pulse 130, thready. The salicylate was now stopped and 15 grains of quinine given, and in a few hours the temperature became normal, and the bad symptoms abated. Three days later the salicylate was renewed in doses of 10 grains every four hours; in twenty-four hours' time the temperature had again risen to 103.4°, with headache and drowsiness, increase of splenic dullness, but no vomiting, and a marked erythematous rash appeared on the face, chest and arms, with some swelling of the face. The drug was stopped, and these peculiar symptoms disappeared in a few hours. Again, some days later, an erythematous rash appeared all over the body, the face, arms, and legs being very œdematous, the lips also much swollen, the temperature rising to 101°, pulse 100, respiration 28. The urine being tested with perchloride of iron, a distinct salicylic acid reaction was obtained. These symptoms also subsided in a few days, and it was assumed that the night nurse had given a dose of salicylate by mistake. A week later, in order to confirm this suspicion, 5 grains of the salicylate were given at two P.M. The patient's temperature was then normal, the tongue was clean, pulse 72, respiration 18. At three P.M. (one hour later) the patient had a rigor; temperature 100.2°, pulse 120, respiration 39; with great dyspnœa and oppression. The patient was drowsy, her face dusky, and her lips bluish. At 6:30 P.M., temperature 101.4°, respiration 36. A marked erythematous rash was seen on the face, back of arms and forearms. On the following day patient feels again much better. The temperature is normal, pulse 75, respiration 18; the rash is disappearing.

There can be no doubt, then, that the symptoms above detailed were due to the salicylate of sodium (more than twenty patients in the hospital were taking the drug at the time, from the same stock). It is curious to notice that the idiosyncracy against the drug increased with each successive administration, for whilst, during the first administration, the symptoms only came on on the third day, in the last we found the patient's temperature had already risen three degrees an hour after the administration of 5 grains. Again, it will be noticed that the symptoms were not always the same—the rash was scarcely perceptible during the first attack, the sickness was absent during the third attack, the dyspnœa chiefly marked during the first and last attack, whilst a rigor appeared in the second and fourth attack. Immediately after each attack the patient passed some urine, which contained some urea.

In his comments on his case Dr. Dreschfeld finds four cases in medical literature where the pyrexia was well marked, but only in one of them does he find erythema to be present. That we have to do with vaso-motor phenomena is evident from the erythema, the œdema, and the profuse sweating. Experiments on animals have clearly shown that salicylic acid and its allies act on the vaso-motor centre. A rise of temperature has also been noticed in experiments on animals. Skin eruptions without pyrexia seem to occur more frequently as an accidental effect of salicylate of sodium. He cites a case of articular rheumatism, where fifteen grain doses, three times daily, soon produced well-marked urticaria; on discontinuing the drug the urticaria disappeared, but reappeared upon its resumption, although it was much less troublesome. A lady after using a vaginal injection containing salicylic acid, was affected with erythema nodosum, which persisted for more than four days, and affected also the lips and mucous membrane of the mouth. The lady herself at once ascribed the effect to the drug, as on a previous occasion, the use of salicylate of sodium for rheumatic pains had produced in her exactly the same symptoms. This leads him to infer that the complication of erythema nodosum with acute rheumatism, may in many cases be due to this drug. The dyspnœa may form the most prominent feature, and may even lead to a fatal issue. He notes two cases where he has observed it—once in phthisis and once in rheumatic arthritis. The dyspnœa resembles very much that seen in diabetic coma. The number of respirations is not increased, and may even be diminished, but there is an excessive craving for air, the pulse becomes small, and frequently the temperature shows no alteration. Experiments on animals show that the influence of salicylate of sodium on respiration is very similar. Small doses increase the respiration, large doses produce marked dyspnœa, often with diminished respiratory frequency, and eventually death seems to be caused by paralysis of the respiratory centre.

ON ABSINTHINE.—Dr. Fernand Roux (*Bulletin Gen. de Therep.*) has found that the common or great absinthe, artemisia absinthium, contains in its bitter principle, absinthine, certain properties that are not toxic and that are of therapeutic value. To determine its degree of toxic effect he gave the drug in small doses for a long continuous period of time, and then in large doses, experimenting upon chickens; coming to the following conclusions: 1st, Absinthine is not toxic in its effects even in a strong dose (2 grammes in a chicken). This result disagrees with the opinion of most authors. 2nd, Its prolonged use in small doses does not give any disagreeable symptoms; 3rd, It seems to have a favorable effect upon the bowels without inducing diarrhœa, when given in moderate doses.

To illustrate its therapeutic effect, Dr. Roux gives the details of seven cases, which lead him to the opinions:

1st. Absinthine as obtained by the process of Duquesnel, the bitter principle of absinthe is not toxic.

2nd. Absinthine is a drug which is useful in chloro-anæmia; convalescence from serious diseases which have weakened the digestive organs; and anorexia without organic lesion of the alimentary canal.

3rd. Absinthine is especially indicated when there exists with anorexia an obstinate constipation.

4th. The most convenient dose is 10 centigrammes, ten minutes before eating, twice daily.

MEDICINE.

ACUTE RHEUMATIC ARTERITIS.—A case which possessed considerable interest and not a little rarity, was narrated by M. Legnux at a recent meeting of the *Société Médicale des Hopitaux* (*Lancet*). The patient was a young lady, aged twenty-two, whose family history was only characterized by the presence of the arthritic diathesis. In July, 1884, she had a second attack of acute rheumatism, a first having occurred at the age of twelve years, but had left no trace behind it. The rheumatism was of a sub-acute character; some joints became painful, rose colored, and a little swollen, but during the moderate fever an eruption of nodose erythema appeared on the front surface of both legs. After the lapse of three weeks the patient went to the seaside, and seemed to improve considerably. At the beginning of August there was quotidian fever, which could only be explained on the assumption of a malarial origin. On the 15th of August there suddenly appeared numbness of the left hand, forearm and arm, soon followed by acute pains and inability to move the fingers or other parts of the limb. When seen by a doctor after these new symptoms, the radial, ulnar and brachial pulse could not be felt on the left side; the limb was icy cold; the hand and forearm were a little swollen, and presented on their dorsal aspect some spots of a rose-brown color. Gangrene was feared, but did not occur. The fever, although somewhat abated by the administration of sulphate of quinine, still continued, and after the fresh incident increased once more; the pulse numbered 110 to 120 a minute; the temperature reached 38° to 39° c., and soon præcordial pain, dyspnœa, palpitation, and a murmur of systolic time marked a pre-existing hæmic bruit. The murmur was loudest at the apex beat, but extended towards the base and all over the aortic area. The first diagnosis made by the patient's ordinary attendant was ulcerative endocarditis with embolic thrombosis of the left brachial artery. There was a little tenderness about the left brachial artery. Dr. Charles Hardy, who saw the patient later, suggested that acute rheumatic inflammation of the artery existed because of the nodosities to be felt along the vessel, of the sensitiveness of the vessel, and of the presence of a bruit all along the thoracic aorta. The obliteration would on this opinion have been due to the acute arteritis, possibly starting from the endocardium and aorta. The limb was kept absolutely at rest, the pains were calmed by hypodermic injections of morphia, and small doses of iodide of potassium were administered. Some time after M. Legnux saw the patient for the first time. The cardiac disturbance was then marked by loud bruits, and the action of the heart was so tumultuous that it was almost impossible to differentiate the various factors of this commotion. There was an intense bruit all down the vertebral column, corresponding to the path of the aorta; auscultation over the left subclavian region yielded a loud bruit. There was a tender pulsatile dilatation of the axillary artery, of the size of a large plum. Below the aneurism the brachial artery was to be felt as a hard, fibrous, pulseless cord. The limb was pale, flabby, wasted and motionless; the hand was atrophied, and a deep furrow in front of the lunula of the nails indicated the period at which circulation had been almost completely arrested. A small degree of sensibilty remained. A slight effusion into the right pleural cavity was diagnosed. The ultimate issue of the case is not yet known.

AUTOPHONY. — Prof. Berthold, of Kœnigsburg (*Revue Mensuelle de Laryngologie, Journal des Sciences Medicatise de Lille*), describes autophony as the pathological resonance of the voice of the subject himself, as well as of the respiratory sounds and arterial pulse. It is most frequently caused by a nasal or pharyngeal catarrh of long standing; a catarrh producing an abnormal dilatation of the Eustachian tube, by atrophy of its mucous lining. A contraction of the muscles of the tube, and the retraction of the pharyngeal opening following an ulcer, may also produce the dilatation and consequent autophony.

The symptoms consist of an exaggerated resonance of the voice of the subject himself, and of the sounds of respiration, to which are added many times the sounds of the pulsation of the vessels. As the autophony is often associated with an exacerbation of a chronic naso-pharyngeal catarrh, and to an acute inflammation of the tympanum, the symptoms of these affections are added to the exaggerated resonance.

As symptoms pertaining to autophony, there should be mentioned the painful sensation to the subject which accompanies speaking, coughing or sneezing, as well as the perception of external noises. To these must be added the sensations felt by the patient during inspiration and expiration, while the mouth is closed, as caused by a movement of the tympanum towards the interior during inspiration, and towards the exterior during expiration, a movement which is readily made visible. With these the patient has a sensation of pressure and fullness in the external auditory canal.

If the phenomena of resonance be very marked, they complain also of a crackling noise like the brisk separation of mucous walls. With this is associated a sense or drawing upon the tympanum. External noises seem to be reinforced. The noises of a passing carriage in the street are very painful to the patient. Rubbing the concha of the ear between the fingers is much more readily appreciated than on the sound side.

Prognosis is always favorable, when there is no complication, and when there exists neither atrophy of the mucous membrane of the tube, nor cicatricial formation at its pharyngeal opening. In the majority of cases, after the catarrh, the mucous membrane is eventually completely relieved. Habit, moreover, enables the patient to support the symptoms readily, when once the pain has disappeared.

Treatment is the same as with chronic nasal, pharyngeal and tubal catarrh. Frequent nasal douches of warm salt water and steam are beneficial. Brenner recommends the insufflation through the tube of sulphate of zinc ¼ to ½ p. 100.

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THE EDITOR of this JOURNAL would be glad to receive any items of general interest in regard to local events, or matters that it is desirable to call to the attention of the profession. Letters written for publication or containing items of information, should be accompanied by the writer's full name and address, although not necessarily to be published. All communications in regard to editorial work should be addressed to the Editor.

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SATURDAY, JANUARY 24, 1885.

ARRANGEMENTS FOR THE NEXT MEETING OF THE AMERICAN MEDICAL ASSOCIATION.—We have assurances that the Committee of Arrangements at New Orleans, of which Dr. Samuel D. Logan is Chairman, is actively at work making all the necessary preliminary preparations for a large and profitable meeting of the Association in that city, commencing on the last Tuesday in April next. The officers of the several Sections are, or should be, actively engaged in securing the preparation of papers and reports for their respective Sections, and are anxious to be furnished as early as possible with the titles of all papers intended by their authors to be presented at the next meeting, that they may be properly placed on the general programme to be prepared and printed by the Committee of Arrangements before the meeting. To aid them, and facilitate the correspondence of members, we reproduce the names and postoffice address of the officers of the Association, and of each of the Sections as follows:

President of the Association, Dr. H. F. Campbell, of Augusta, Georgia; Permanent Secretary, Dr. Wm. B. Atkinson, 1400 Pine street, Philadelphia, Pa.; Assistant Secretary, Dr. W. H. Watkins, of New Orleans, La.; Treasurer, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa.; Librarian, Dr. C. H. A. Kleinschmidt, of Washington, D. C.; Chairman of the Committee of Arrangements, Dr. Samuel D. Logan, of New Orleans, Louisiana.

Section of Practical Medicine and Materia Medica: Chairman, Dr. H. D. Didama, Syracuse, New York; Secretary, Dr. G. M. Garland, Boston, Mass.

Section of Surgery and Anatomy: Chairman, Dr. Duncan Eve, Nashville, Tenn.; Secretary, Dr. E. B. King, Allegheny, Pennsylvania.

Section of Obstetrics and Diseases of Women: Chairman, Dr. R. S. Sutton, Pittsburgh, Penn.; Secretary, Dr. R. T. Jelks, Hot Springs, Ark.

Section of Ophthalmology, Otology and Laryngology: Chairman, Dr. J. A. White, Richmond, Va.; Secretary, Dr. Eugene Smith, Detroit, Mich.

Section of State Medicine: Chairman, Dr. E. W. Schaufler, Kansas City, Mo.; Secretary, Dr. J. N. McCormick, Bowling Green, Ky.

Section of Diseases of Children: Chairman, Dr. J. H. Pope, Marshall, Texas.; Secretary, Dr. S. S. Adams, Washington, D. C.

Section of Oral and Dental Surgery: Chairman, Dr. W. W. Allport, Chicago, Ill.; Secretary, Dr. E. C. Briggs, Boston, Massachusetts.

Committee on Necrology: Chairman, Dr. J. M. Toner, Washington, D. C.

It will add much, both to the pleasure and profit of all who attend the meeting, if the by-laws requiring all parties intending to present reports or papers, to notify either the Chairman of the Committee of Arrangements, or the Chairman of the Section in which the paper would belong, at least thirty days before the time of the annual meeting, and that all papers be complete in their preparation, and when presented or read they be passed directly into the hands of the Secretary of the Section or of the Association, could be literally complied with. And it takes no more of the time of any member to complete a paper in good order before the time of meeting, than it does to present an imperfect abstract, not of his paper, but of what he intends his paper to be some months hence, when he vainly expects to have more time to write it out. There has been too much of this imperfect work in the past, too many papers read by abstract or title and referred for publication, that had no existence at the time, and occasionally one that never gained a visible existence afterward. Every member should take pride in doing his work promptly, and doing it well.

PERMANENT MEMBERSHIP BY APPLICATION.—We stated fully, soon after the last meeting of the American Medical Association in Washington, that the constitution of that organization had been so amended that permanent membership could be obtained without actually attending an annual meeting. Any member of a regular State, District, or County Medical Society entitled to send delegates to the National Association, can become a member of the latter organization by simply sending to the Treasurer, Richard J. Dunglison, M.D., lock box 1274, Philadelphi, Pa., *five dollars* as annual membership fee, accompanied by a certificate signed by the President and Secretary of the State or local Society to which

he belongs, stating that he is a member in good standing, and desires to be enrolled as permanent member of the National Association. The payment of the five dollars to the Treasurer also entitles him to the JOURNAL of the Association for the current year, during which he becomes enrolled as a member. And he will continue his membership and the reception of the JOURNAL, so long as he pays to the Treasurer his annual membership fee, and remains in good standing in the State or local Society in the place of his residence. A considerable number of those who took the JOURNAL the first year as subscribers, have made application, as above stated, and are now enrolled and receiving it as regular members of the Association. It is desirable that all should do so, who can furnish the required certificate of good standing in the State or local Society where they live.

CONGRESS AND PUBLIC HEALTH.—Several weeks since we published in the JOURNAL the copy of a bill to establish a National Board of Health, as prepared by the Conference of State Boards of Health, and submitted to Congress soon after that body assembled in December. In this issue of the JOURNAL, under the head of State Medicine, we give the full text of a bill for the establishment of a Bureau of Health as a permanent department of the National government. The bill has been prepared by Dr. O. W. Wight, of Detroit, Mich., who has devoted much time and attention to sanitary matters and sanitary legislation, and its merits deserve careful consideration.

It was introduced into the Senate by Senator Palmer on the 9th inst. While it is not probable that the present Congress will do more than to appropriate an extra sum of money to be placed at the disposal of the President for use in case a cholera epidemic should appear, the subject of a permanent National Department of Health is one of much importance. Whether it shall take the form of a National Board of Health, or of a Bureau of the Government, is a question which should be fully considered by the medical profession, and for the temperate and intelligent discussion of which our columns are open.

BURNING OF THE EASTERN ILLINOIS HOSPITAL FOR THE INSANE.—One of the buildings constituting this asylum at Kankakee, Illinois, was burned on the morning of the 18th inst., causing the immediate death of seventeen of the inmates. The cause of the fire is stated to have been the too close proximity of pine timbers to one of the furnaces, while there had been no adequate means provided for extinguishing a fire after it had commenced.

SOCIETY PROCEEDINGS.

CHICAGO GYNÆCOLOGICAL SOCIETY.

Regular meeting, Chicago Gynæcological Society, Dec. 19, 1884. The President, Dr. H. P. Merriman, in the chair.

Dr. W. H. Byford read a paper entitled, "A Case of Mural Pregnancy." The history of the case was obscure. The patient, 28 years old, married seven years, had one child, six years old. She supposed she became pregnant, for the second time, in February, 1883. In April she became fatigued, and had hæmorrhages which continued until May 9,—about four weeks. Oct. 14th, a discharge of yellow fluid, about one gallon in quantity, occurred. A putrescent, sero-sanguineous discharge followed, continuing three months. January, 1884, a large brownish mass, with very fœtid odor, was expelled. After this event, menstruation occurred until July. In May, she was quite large, and had bearing-down pains. She entered the hospital Oct. 6, 1884. She was tapped Oct. 18, and about four quarts of thick, tenacious fluid, resembling the fluid of an ovarian cyst, was removed. This fluid coagulated on the addition of nitric acid and on boiling. Assisted by Dr. R. Tilley, a microscopical examination was made, with negative results. The "Drysdale" cell was not found. Laparotomy was performed, and a fœtus with placenta was removed without hæmorrhage or difficulty. In order to secure perfect drainage, it was considered best to remove the uterus. The operation was performed on Oct. 30; the patient did not react, but died within twenty-four hours. Prior to the operation, the patient was extremely reduced by her protracted sufferings. Dr. Byford, in a similar case, at the present time, would elect the vaginal operation. The specimens removed from the woman were exhibited as supporting the diagnosis of mural pregnancy.

This was the second case of mural pregnancy that had come under the reader's observation within a period of five years. The first case was reported to the CHICAGO GYNÆCOLOGICAL SOCIETY, some time ago. The patient was in labor and moribund when Dr. Byford saw her. She had been in labor until exhausted. There was no difficulty in making a diagnosis. The head was low down in the pelvis, almost on the perinæum. The *os uteri* was well-nigh inaccessible behind and above the symphysis. The body of the uterus, somewhat enlarged, could be felt in the lower and anterior part of the abdomen, attached to the tumor containing the fœtus. The fœtus could be felt through the abdominal walls, surrounded by a thick involucrum, apparently as thick as the uterine walls. Fœtal extremities could be distinguished. When dissected, the sac in which the fœtus was contained, was found to consist of a thick layer of muscular fibres. These fibres were directly continuous with those of the uterus. The tubes and ovaries lay on either side of the lower portion of the sac. The fecundated ovum had made its way down the tube, become lodged in a diverticulum

in the uterine wall, and was gradually extruded into the cavity of the abdomen. The fœtus was thus developed within the uterus, though not within the uterine cavity. The resemblance to normal pregnancy is great in the presentation and position of the fœtus, deep down in the pelvic cavity, behind the vagina. The head, in this case, was fixed by the concentric contraction of the uterine fibres by which it was surrounded, and could be easily outlined as it lay there covered by the posterior vaginal wall.

The specimen presented is much less perfect than the one described, because of the numerous effects wrought upon it during the great length of time it remained in the maternal body, and the mutilation consequent upon enucleation.

The treatment of these cases ought to be considered apart from that of extra-uterine pregnancy at term. It is always a matter for special consideration, in connection with each case as it presents itself, whether or no the removal of the fœtus at term, in extra-uterine gestation, should be attempted. The dangers of laparotomy are greatly increased by the inability to remove the placenta. The surface to which it is attached has no contractile power, so that the divided vessels are left patulous. If hæmorrhage does not immediately prove fatal, the blood is a source of sepsis that must almost certainly destroy the patient. Laparotomy would more likely prove successful, if performed some days after the birth of the child. In these cases of ectopic or interstitial uterine pregnancy, the fœtus may be easily removed through the vagina. An incision made through the posterior vaginal wall would completely uncover the presenting part, and enable one to apply the forceps or attack it with the perforator and crotchet, as in ordinary labor. After the removal of the fœtus, the placenta should be allowed to separate spontaneously.

Since writing this report, Dr. Byford has seen a case reported in the *Annales de Gynæcologie*, July, 1884, occurring in the practice of Mr. Matheson, of England, illustrative of the execution of this plan. The case was reported to the London Obstetrical Society under the title, "Extra-Uterine Pregnancy; the Extraction of a Living Fœtus Through the Vagina." The child was slightly asphyxiated, but survived. A sponge saturated with perchloride of iron was introduced into the sac, after removal of the placenta. The mother recovered. It would seem that the author did not suspect his case to be one of interstitial pregnancy. During the discussion that followed, only one of those present expressed the opinion that it was of that variety. Mr. Griffith thought it was either interstitial pregnancy, or one in which the fœtus was developed in one portion of a double uterus.

DISCUSSION.

Dr. Edward Warren Sawyer thought that interstitial pregnancy meant the development of the ovum in the uterine portion of one of the tubes. In Dr. Byford's case the uterine portions of the tubes were not involved. It reminded him of a case he had seen near Denver. In this case a secondary uterus, with muscular walls, had been developed, but as the tubes were not involved he did not feel justified in designating the case one of interstitial pregnancy.

Dr. D. T. Nelson said, with reference to the treatment of the placenta, that Dr. Byford's advice was that usually recommended in the text-books. The placenta should be left alone in those cases in which the walls of the secondary uterus were not muscular. He had seen a case in the museum of the Chicago Medical College, in which no muscular fibre could be detected in the walls. When the walls of the adventitious uterus were muscular, it was questionable whether or no the placenta should be left alone. If the placenta is removed, there is danger of hæmorrhage; if the placenta remains, there is danger ot sepsis. When there was reason to suppose that con tractions of the adventitious uterus would check hæmorrhage, he thought the placenta should be removed. He had no experience in these cases.

Dr. E. C. Dudley replied to Dr. Nelson. Women, in cases of extra-uterine pregnancy, in which the placenta has been allowed to remain, do not die of sepsis. He had seen two or three cases in which the sac had been united to the abdominal incision. Whenever evidence of sepsis occurred, the sac was washed out, and the temperature immediately fell to the normal. The placenta, under these circumstances, is spontaneously eliminated in about three weeks.

It required phenomenal powers of diagnosis to tell, in the concrete case, whether or no the sac had sufficient muscular fibres to prevent hæmorrhage. The placenta should be permitted to remain within the sac.

Dr. J. H. Etheridge thought that if, on microscopical examination, it was found that the muscular fibres of the normal uterus were continuous with those of the adventitious uterus, the case was one of mural pregnancy. In cases of abdominal pregnancy, there was a line of demarkation between the normal and adventitious uterus.

Dr. A. Reeves Jackson thought the members of the society were greatly indebted to Professor Byford for the presentation of such an interesting specimen. He thought, however, with Dr. Sawyer, that the results of the anatomical investigation did not support the author's diagnosis. The uterine portions of the tubes were not involved. So valuable a specimen deserved very close microscopical and macroscopical examination. It ought to be referred to a competent pathological anatomist.

Dr. John Bartlett thought the ovum had not passed through the tube, but had been developed in the broad ligament, beneath the peritoneum, and had, in this manner, derived muscular fibres from the uterus.

Dr. W. W. Jaggard referred to the fact that, next to ovarian pregnancy, interstitial pregnancy was of most infrequent occurrence. Up to the present time, about thirty cases, in regard to which the diagnosis was positive, had been reported. Interstitial or mural pregnancy included other sites of development than the uterine portions of the tubes. Dr. Gilbert's case, reported in the *Boston Medical and Surgical Journal*, 3d March, 1877, and alluded to by Professor Lusk in his "*Treatise on Midwifery*," was a case in point. The ovum in this case was devel-

oped in what seemed to be a bifurcation of the Fallopian tube. In Dr. Byford's case, the tubo-uterine orifices were not involved. The sac was extrinsic to the uterine walls. It was probably a case of abdominal pregnancy, in which the ovum became attached to the posterior uterine wall, and derived muscular fibres from this locality. The fact that a continuity of muscular fibres from the normal uterus to the adventitious uterus might be ascertained upon microscopical examination, would prove nothing as to the nature of the pregnancy. Dr. Byford's case resembled that of Janvrin, in which the ovum lodged on the posterior uterine wall and developed in this situation, involving the posterior wall in its sac. The specimen was worthy of a more exact investigation, and should be placed in the hands of a competent pathological anatomist.

Dr. Sawyer said that abdominal pregnancy, with location of ovum on posterior uterine wall, was not at all improbable. He then referred to Bischoff's and Leopold's observations and experiments with relation to the "external wandering over of the egg." Beigel had ridiculed this idea. It was like a blind man introduced into a large, empty room, with a thread in his hand, seeking to find and thread the eye of a needle, located in some indefinite quarter of the room. Notwithstanding this sarcasm, the fact of the external wandering over of the egg was a fact of positive knowledge. The egg may pass from one ovary to the opposite Fallopian tube, through the abdominal cavity. He thought the specimen exhibited was one of abdominal pregnancy.

Dr. Dudley thought the fact of the external wandering over of the egg was not disputed at the present time. Playfair in his treatise on midwifery, gave a clear exposition of the subject.

Dr. Charles Warrington Earle said that the fact of external wandering over of the egg was fully recognized twelve years ago.

Dr. Sawyer said the ovum in abdominal pregnancy might be attached to the posterior wall of the uterus, the mesentery, under surface of the liver, or to other viscera.

Dr. Nelson made the remark that in both of the cases cited by Dr. Byford, *deciduæ* had been cast off by the *uteri*.

Dr. Jackson said that Fränkel was of the opinion that the formation and extrusion of a decidua was a constant occurrence in extra-uterine pregnancy. It was pathognomonic of the condition.

Dr. W. H. Byford was not surprised that certain members did not agree with him in his diagnosis. He thought that in the first case the fecundated ovum passed through the tube, but had found some diverticulum in the uterine cavity, and had passed into the posterior wall, had developed in this region, pushing the wall before it. Some of the reasons for this position were as follows:

The muscular elements of the sac were directly continuous with the uterine muscle. He did not believe that such a muscular sac could develop adventitiously in pregnancy in the abdomical cavity. He had seen cases of abdominal pregnancy in which he could detect no muscular fibre. The head presentation, down deep in the pelvic cavity, in the direction of the resultant of the forces developed by uterine contractions, supported his view of the case.

It is not necessary for the production of mural pregnancy that the tubes be involved. He thought there was much in the remarks of Dr. Nelson and Dr. Dudley. In cases in which there was sufficient contractility, it was best to remove the placenta. Even under these circumstances it was not absolutely necessary. There was no danger in allowing the placenta to remain.

Finally, he was very positively of the belief that the two cases referred to in this paper, were examples of mural pregnancy. The peritoneum was a boundary line between mural and abdominal or peritoneal pregnancies.

Dr. Sawyer asked the question: Is the peritoneum a boundary line of importance in the macroscopical or microscopical differential diagnosis between abdominal and mural pregnancies?

Dr. Jaggard, in reply, said that the peritoneum was no barrier. What was the peritoneum? Dr. Etheridge, in an article on "Chronic Adhesive Perimetritis," published in a recent number of the *Chicago Medical Journal and Examiner*, had ably sketched the anatomy of this membrane. It was developed out of connective tissue, according to Rindfleisch, and other distinguished anatomists. It offered absolutely no barrier to the attachment of the ovum to the posterior uterine wall, and its development in this situation, with the derivation of muscular element from the normal uterus.

On motion, Doctors Byford, Merriman and Jaggard were appointed a committee to select a competent pathological anatomist, who did not belong to the society, to examine the specimen and report at the next regular meeting. It was specified in the resolution that the *pathologist should be amply paid for the labor*.

Dr. Etheridge then exhibited a placenta with calcareous deposits. The placenta was removed from the body of a woman pregnant for the first time, who had probably carried the fœtus 292 days. The calcareous deposit was probably the result of fatty metamorphosis of the upper layers of the *decidua serotina*.

Dr. Sawyer said the placenta was interesting, but not uncommon. It has been erroneously believed that such *placentæ* are of syphilitic origin. He thought the connection with prolonged gestation was established.

Dr. Dudley referred to the calcareous deposit in the walls of the arteries supplying an ovarian cyst, which he had removed some years previously.

Dr. Jackson related the history of a case, in which he had removed a mass of calcium carbonate, situated in the recto-vaginal septum, one and one-half inches from the vulvo-vaginal orifice. There was no fatty metamorphosis in this case.

Dr. Earle thought there was an unreasonable tendency to ascribe such cases to the effects of syphilis. Hydatidiform degeneration of the chorionic villi, and hydrops amnii received a similar erroneous etiology.

Dr. Etheridge said that the deposits were composed of the phosphate and carbonate of calcium. These

had an affinity for albumens and fatty acids residing in the cotyledons. Similar calcareous deposits were found in the fibroids, thrombi, encysted trichinæ, and in the lithopædia of extra-uterine pregnancy.

Dr. W. H. Byford thought the connection between prolonged gestation and calcareous deposits in the placenta, was established. He thought that Dr. Etheridge would find, on microscopical examination, that the changes had occurred exclusively within the vessel walls.

The Society then adjourned, to meet on the third Friday evening in January, at the residence of Dr. E. C. Dudley, No. 2317 Indiana avenue, at 8 o'clock.

The business of next meeting will be:

(1) Report of the pathologist, Dr. Christian Fenger, on Dr. Byford's specimens.

(2) Exhibition of specimens from a double ovariotomy, by Dr. E. C. Dudley.

(3) Discussion of certain methods by which the second stage of labor may be rendered easier, by Henry T. Byford.

W. W. JAGGARD, M.D., *Editor.*

2330 Indiana avenue, December 22, 1884.

STATE MEDICINE.

A BILL TO PREVENT THE INTRODUCTION AND DIFFUSION OF CONTAGIOUS AND INFECTIOUS DISEASES IN THE UNITED STATES, AND TO PROMOTE THE GENERAL SANITARY WELFARE OF THE PEOPLE.

Be it enacted by the Senate and House of Representatives in Congress assembled, that:

Section 1. There shall be, and hereby is, established in the Treasury Department a Bureau of Public Health, charged with the execution of all laws passed by Congress relating to quarantine and the public health, and with the framing and execution of sanitary regulations as hereinafter provided. The chief officer of the said Bureau shall be denominated the Commissioner of Public Health, and shall be under the general supervision of the Secretary of the Treasury. He shall be appointed by the President, by and with the advice and consent of the Senate, and shall hold his office for the term of five years, unless sooner removed by the President, upon reasons to be communicated by him to the Senate, and until his successor shall be appointed and confirmed.

Sec. 2. There shall be allowed to the Commissioner of Public Health an annual salary of four thousand five hundred dollars, payable monthly, and actual necessary traveling expenses in the performance of his official duties, for which vouchers shall be rendered.

Sec. 3. The Commissioner of Public Health shall, within fifteen days from the notice of his appointment, take and subscribe the oath of office; for his use the Secretary of the Treasury shall provide suitable offices, and he shall employ, from time to time, the necessary clerks, to be appointed and classified by the Secretary of the Treasury, to discharge such duties as the Commissioner of Public Health shall direct.

Sec. 4. The Commissioner of Public Health shall appoint, by and with the advice and consent of the Senate, seven superintendents of external and internal quarantine, embracing both infected persons and infected or adulterated goods, for the following districts, to-wit:

First. One for the Atlantic coast, from the port of Baltimore (exclusive), northward to the boundary line between the United States and the British Provinces, and thence along said boundary line to the intersection of the same with the river St. Lawrence;

Second. One for the Atlantic coast from the port of Baltimore (inclusive) southward to Key West (inclusive);

Third. One for the Gulf coast from Key West (exclusive) to the Mexican border, and thence along the boundary line between the United States and Mexico to the head waters of the Rio del Norte;

Fourth. One for the Pacific Coast and the States bordering thereon and the boundary lines as far eastward as the head waters of the Rio del Norte and of the Missouri river.

Fifth. One for the coasts of the lakes and rivers of the northern boundary of the United States and as far west as the head waters of the Missouri river.

Sixth. One for the inter-state travel and traffic of all States bordering on the Atlantic ocean or east of the Allegheny mountains.

Seventh. One for the inter-state travel and traffic of all the States in the Mississippi Valley.

The tenure of office of such superintendents of quarantine shall be the same as that of the Commissioner of Public Health. Their compensation shall be three thousand six hundred dollars per annum each, payable monthly, and their actual and necessary traveling expenses in the discharge of their duties, for which they shall render vouchers. Like the Commissioner of Public Health, they shall take and subscribe the oath of office. Their duties shall consist in executing, under the direction of the Commissioner of Public Health, the regulations provided for in the next following section, and to make full reports thereof.

Sec. 5. The Commissioner of Public Health, aided by the aforesaid Superintendents of quarantine, shall frame a code of regulations for the conduct of the external and internal quarantine of the United States. The sole aim and scope of such regulations shall be for the protection of the people against contagious and infectious diseases and against the dangers to life and health from poisonously adulterated goods for the use of the people. Such regulations shall conform, as far as practicable, to the local quarantine regulations in the several States. It shall be the duty of the Bureau of Public Health to supplement and not to antagonize the efforts of State and municipal boards of health in the work of sanitation. Such regulations may embrace provisions for obtaining in connection with the consular service of the United States special information concerning the shipment to this country of infected persons and of infected or poisoned goods and for the arrest of the same

before landing. Such regulations may also contain proper provisions for the detention and disinfecting of infected persons and goods in transit from one State to another, and for the destruction of goods infected and poisoned to such a degree that no reasonable process of purification can make the same safe. Such regulations shall be approved by the Secretary of the Treasury, the Attorney General and the President, and also by the Secretary of State so far as any provisions looking to the coöperation of foreign consuls are concerned, before the same shall become of any validity; but after such approval and after official publication, they shall have the force of law, for the violation of which the proper Federal courts shall take cognizance.

Sec. 6. The Commissioner of public health shall appoint, by and with the advice and consent of the Senate, an Inspector of the ventilation, draining and plumbing of all buildings belonging to the United States. The compensation and tenure of office of said Inspector shall be the same as that of the Supervisors of quarantine. He shall also take and subscribe the oath of office. The Commissioner of Public Health, aided by said Inspector, shall prepare a code of regulations for the ventilation, draining and plumbing of public buildings, which said regulations, when approved by the Secretary of the Treasury, the Attorney General and the President, and officially published, shall have the force of law, with which all public buildings hereafter constructed shall conform, and when any existing buildings are undergoing repairs, the same shall, so far as practicable, be thereto applied. The duty of such Inspector shall be to execute, under his personal supervision, the aforesaid regulations, and to make full reports thereof to the Commissioner of Public Health.

Sec. 7. The Commissioner of Public Health shall appoint, by and with the advice and consent of the Senate, a Chief Clerk of his Bureau, who shall conduct the correspondence and keep the records thereof, and, during the absence or disability of the Commissioner of Public Health, may be designated by him, with the assent of the Secretary of the Treasury, to act as his deputy, or in case of the removal or death of the Commissioner of Public Health may be designated by the Secretary of the Treasury and the President to act as head of the Bureau till the vacancy is filled. The Chief Clerk shall take and subscribe the oath of office, and his compensation and tenure of office shall be the same as that of the Superintendents of quarantine.

Sec. 8. The Commissioner of Public Health shall appoint, by and with the advice and consent of the Senate, a Public Analyst, who shall make or superintend chemical analyses and microscopical examinations of all substances submitted to him for such purpose by the Commissioner of Public Health, and prepare full reports of the same. He shall take and subscribe the oath of office, and his compensation and tenure of office shall be the same as that of the Chief Clerk aforesaid. The Public Analyst shall be provided with a proper laboratory, apparatus and instruments, for doing his work well, by the Secretary of the Treasury.

Sec. 9. The Commissioner of Public Health and the Surgeon General of the Army shall prepare a code of proper regulations for the better sanitation of the Army of the United States, which said regulations, when approved by the Secretary of War, the Attorney General and the President, and officially published, shall have the force of law and shall be executed by surgeons in the Army, under the supervision of their military superiors.

The Commissioner of Public Health and the Surgeon General of the Navy shall prepare a code of proper regulations for the better sanitation of the Navy of the United States, which said regulations, when approved by the Secretary of the Navy, the Attorney General and the President, and officially published, shall have the force of law, and shall be executed by surgeons in the Navy, under the supervision of their naval superiors.

The Commissioner of Public Health and the Commissioner of Education shall prepare a code of proper regulations for the better sanitation of all schools within jurisdiction of the United States, which said regulations when approved by the Secretary of the Interior, the Attorney General and the President, and officially published, shall have the force of law, and shall be executed by the Commissioner of Education.

The Commissioner of Public Health and the Surgeon General of the Marine Hospital Service shall prepare a code of proper regulations for the better sanitation of merchant vessels sailing under the flag of the United States, which said regulations, when approved by the Secretary of the Treasury, the Attorney General and the President, and officially published, shall have the force of law, and shall be executed by the Surgeons of the Marine Hospital Service, under the supervision of the Surgeon General of said service. Any vessels neglecting or refusing to comply with the aforesaid regulations shall forfeit their right of registration.

The Commissioner of Public Health and the Commisioner of Agriculture shall prepare a code of proper regulations for the better sanitary transportation from State to State, of animals designed for the food of man, which said regulations, when approved by the Secretary of the Treasury, the Attorney General and the President, and officially published, shall have the force of law, and shall be executed by the agents of the Agricultural Department, under the supervision of the Commissioner thereof, or by the Superintendents of quarantine herein provided for, under the supervision of the Commissioner of Public Health.

The Commissioner of Public Health and the President of the American Medical Association shall prepare a code of regulations for the practice of physic and surgery, and midwifery, in any place or territory under the jurisdiction of the United States, which said regulations, when approved by the Secretary of the Interior, the Attorney General and the President, and officially published, shall have the force of law, and shall be executed by the Commissioner of Public Health. Such regulations shall not include the Army, Navy and Marine Hospital Medical Services. For the service aforesaid the President

of the American Medical Association is hereby appointed, and shall receive such compensation therefor as may be agreed upon between him and the Commissioner of Public Health with the approval of the Secretary of the Treasury.

Sec. 10. All goods designed for the food or drink of man, for wearing apparel, or for the furniture or decoration of habitations, so poisoned by adulteration, by coloring matter, or by any ingredient whatsoever, as to become demonstrably dangerous to human life or health, are hereby declared to be contraband of commerce anywhere within the exclusive jurisdiction of the United States, and may be seized, detained, confiscated or destroyed by the Commissioner of Public Health or his agents, with the approval of the Secretary of the Treasury, the Attorney General and the President.

Sec. 11. The Commissioner of Public Health may call on the President to detail army surgeons, with the concurrence of the Secretary of War, or navy surgeons, with the concurrence of the Secretary of the Navy, to investigate special diseases or their causes. When army or navy surgeons are thus detailed, they shall receive no extra compensation, but their actual necessary traveling expenses shall be paid, for which vouchers shall be rendered. They shall make full reports of their investigations to the Commissioner of Public Health.

Sec. 12. The Commissioner of Public Health may, with the approval of the Secretary of the Treasury and the President, and shall, on the requisition of the Secretary of the Treasury and the President, temporarily employ competent physicians to aid the Superintendents of quarantine during the invasion of an epidemic disease, and physicians thus temporarily employed shall receive compensation at the rate of $10 per day during the time of actual service, and their actual and necessary traveling expenses shall be paid, for which vouchers shall be rendered.

Sec. 14. The Commissioner of Public Health shall issue a weekly bulletin, for free distribution to all health boards and to the press of the country, containing an abstract of sanitary information in his possession that may be useful and interesting to the people. He shall make an annual report to the Secretary of the Treasury, to be transmitted by him to Congress, containing a full account of all the transactions and expenditures of the Bureau. The bulletin and report aforesaid, and all other necessary documents, shall be printed at the Government Printing Office, on the requisition of the Commissioner of Public Health, in the same manner and subject to the same provisions as other public printing for the several departments of the government.

Sec. 15. Any violation of the provisions of this act, or of the regulations authorized by this act, shall be punishable by a fine of not less than one hundred dollars nor more than one thousand dollars, or by imprisonment not less than thirty days nor more than one year, or by both such fine and imprisonment, in the discretion of the court. The district courts and the prosecuting attorneys of the United States are hereby required to take cognizance of offences arising under this act, within their several jurisdictions.

Sec. 16. To defray the expenses incurred in carrying out the provisions of this act, the sum of $400,000 or so much thereof as may be necessary, is hereby appropriated, to be disbursed under direction of the Secretary of the Treasury, on the requisition of the Commissioner of Public Health.

Sec. 17. An act entitled "An act to prevent the introduction of contagious and infectious diseases into the United States, and to establish a National Board of Health," approved March 3, 1879, and all other acts or parts of acts conflicting with the provisions of this act, are hereby repealed.

Sec. 18. This act shall be in force on and after its passage and publication.

FOREIGN CORRESPONDENCE.

LONDON LETTER.

LONDON, December, 1884.

Dr. Arnold Royle, who was the private medical attendant of the late Duke of Albany, has been appointed "Gentleman Usher, Groom of the Privy Chamber, and Clerk of the Robes" to the Queen. The post is a sinecure and is worth about £280 a year. Dr. Royle has certainly earned the Queen's favor, for his late post was a most arduous and difficult one to fill.

Three years ago, the Rev. Canon Erskine Clarke founded the Bolingbroke House Pay Hospital, which was intended for the reception of patients of the lower middle classes, and particularly for those who had fallen sick in lonely lodgings. They were to be received upon paying such a reasonable portion of their actual cost as the means of the patient allowed. It is obvious that by this means such an institution would be serving two very great objects, viz., the medical treatment of those who were willing to pay their utmost, instead of seeking free medical advice at one of the general hospitals, and enabling them to take in a great number of really poor, necessitous cases. Hitherto this useful experiment has been conducted with the aid of an active local medical staff, but as this was thought to somewhat limit the usefulness of the hospital, the institution has now been thrown open to any qualified medical man who may wish to send in cases that need hospital treatment. Although conducted on strict hospital principles it may be described as "a home within a hospital." Servants paid for by their masters or mistresses are received at one guinea weekly, and this is a very useful branch of the hospital's work.

At a meeting of the Cambridge Medical Society an interesting case was brought to notice, of a man aged 50, robust and of temperate habits, who for the last twenty-five years had suffered from paroxysmal attacks of great pain in the epigastrium. These increased in frequency and severity, chiefly during defœcation. Sometimes the process lasted from one to three hours, during which he had frequent recourse to brandy and laudanum; at the conclusion he usually

passed a few drops of glairy mucus from the bowel, with the simultaneous shedding of a few tears. When seen during the paroxysm, his countenance was pallid, and bathed with perspiration, expressing agony. His death occurred suddenly; previously he was very restless and exhausted. At no time were there any physical signs. The necropsy revealed a hard substance near the centre of the pancreas. The head appeared natural, but, extending from about the middle of the body, a line of prominences could be seen running along the long axis to the tail, accompanied by great structural change. Some of these masses were very pointed, denuded, and projected under the areolar tissue and peritoneal covering. The lower part consisted of one amorphous mass of concretion, without any soft gland-structure. Close to the sharp points the peritoneum and wall of the stomach were acutely inflamed, but there was no effusion. The concretions consisted of carbonate and phosphate of lime. The scantiness of the literature on pancreatic concretions was alluded to. The emotional phenomena were thought to be due probably to reflex irritation of the alimentary canal, and the sudden death referred to the injury of the peritoneum by the sharp projections. At the same meeting the case of a lady aged eighty was mentioned, in whom for upwards of fifteen years symptoms of intermittent pain at the epigastrium, with emotional phenomena existed, and at the post-mortem examination there was found a spindle-celled sarcoma of the head of the pancreas, but no concretions.

A lecture entitled "A Healthy Skin" has been delivered by Mr. Startin, house surgeon to the St. John's Hospital for diseases of the skin. The lecturer said nothing was so likely to preserve us from cholera and from every other disease of an epidemic and contagious kind as a proper and constant care of the skin. Mr. Startin also dwelt upon the importance to health of a careful attention to diet. English people, as a rule, took too much and too stimulating food, and would be the better for a more mixed and vegetable diet. He condemned also entirely the use of spirits, except as a medicine. The question of clothing was also of great importance in relation to the preservation of health. Clothes should not be worn tight, and should be of such material as would convey from the skin the matter transpired. The best material for wearing next the skin was white flannel, or as an alternative, merino. Red flannel should never be worn, and his audience was warned to avoid all colored fabrics next the skin.

Dr. W. N. Thursfield, at the conference held under the auspices of the Society of Medical Officers of Health, on "The Spread of Infection through the Agency of Milk," said that the use of milk by adults had of late enormously increased, and although he could not but consider that to drink milk as a beverage with heavy meals was a grave dietetic error, the modern practice of drinking glasses of milk instead of beer at railway refreshment bars, etc., was not to be condemned. To prevent milk epidemics precautions were necessary. He recommended boiling of milk, as it was a well-known fact that consumers of boiled milk had invariably escaped in all epidemics.

Dr. Wood, the inventor of the hypodermic syringe, died lately at his house in Edinburgh. In 1855 he drew attention to his new method of treating neuralgia by subcutaneous injection. He was one of the former lecturers on The Practice of Medicine at the Royal College of Surgeons, and President of the Royal Medical Society.

A course of six lectures will be delivered during this year at the London Hospital by Mr. Jonathan Hutchinson, as Emeritus Professor of Clinical Surgery, on subjects of interest to house surgeons and dressers. Members of the profession will be admitted to these lectures. At a meeting of the committee formed to consider the best means of commemorating the name of Dr. Rabbeths and the sacrifice he made of his life in the attempt to save a child's life suffering from diphtheria, it was resolved to establish a memorial medal at the University of London, bearing Dr. Rabbeth's name, and a similar medal or scholarship at King's College. The endowment of a child's cot at King's College Hospital and the Royal Free Hospital, and the erection of memorial tablets in the same building, were also resolved upon.

There have just been removed by death two rising medical men, both already well known for their various accomplishments. The first was Dr. Mahomed, of Guy's Hospital, at the early age of 39, of typhoid fever; the other, Dr. Llewelyn Thomas, after three days' illness of acute nephritis, at the age of 36. Dr. Thomas acted some years at the Guest Hospital, Dudley, and then settled in London as a specialist in diseases of the throat and ear. He was surgeon to the Central London Throat and Ear Hospital and to Trinity College, London. G. O. M.

BERLIN LETTER.

BERLIN, Dec. 1, 1884.

The Treatment of Syphilis by Massage—Pellaterine in the Treatment of Tapeworm—Professional Notes.—For pay patients in his private hospital Dr. Lassar has inaugurated a routine treatment in all cases of syphilis. In his poli-klinik the poor people receive much the same attention, only in a less elaborate way, and specific medication is given by hypodermic injections of the mercuric bi-chloride. The well-to-do case of specific disease is first put into a tub of water as hot as it can be tolerated. A strong nurse then gives him massage in the tub, and out of the water unguentum hydrargyri is rubbed in. The patient is then put into a sweat bed, and hot teas or pilocarpin administered. Then iodide of potassium and sarsaparilla tea, the latter to keep the skin active, Dr. Lassar's theory of massage being, to render the lymphatic system more active in expelling the virus, and to place the skin in such condition that it can ably second the endeavor. The masseur, anointing his hands with vaseline, begins first with the arms, which are rubbed quite forcibly in a direction from the wrist to the shoulder, then, with the thumb and

forefinger of each hand encircling that member in so far as is possible, an "eccentric" motion is commenced, the two fingers of the one hand rotating toward the body, while the motion with the other hand is just the reverse, or away from the body of the masseur. Then, grasping the hand of the patient, the arm is extended, rubbed, kneaded, and passive motion is kept up for a few moments. The trunk receives the same attention, also the extremities; only instead of the "eccentric" motion, there is a slapping diversion, and a larger attention given to the deep kneading of the muscles. Dr. Lassar is having excellent results, but whether *post hoc* or *propter hoc*, I am unable to say. In connection with specific treatment massage has much to commend itself to the attention of physicians. How far its practice could obtain outside of a private hospital, remains to be seen. In Dr. Lassar's perfectly arranged and extensive sanitarium there is every facility for elaborate technique and investigation. The expense incident to the sustaining of such an institution must be great, and only possible with men in *very* large and remunerative walks of life. The use of pellaterine (the alkaloid of the pomegranate) has sprung suddenly into popularity here, owing to the immediate and entirely satisfactory effects arising from its administration. Its excessive *cost* militates against its general use. Not long ago, Hegar, of Fribourg (*Prager Med. Wochenschrift*, No. 26, 1884) published an article, "a new method of diagnosing with certainty, pregnancy in the early months." This consisted in a certain softness, pliability and tenuity of the inferior segment of the uterus—that is to say, of that part of the womb immediately superior to the insertion of the utero-sacral ligaments. Dr. Schroeder, in his lecture to the students on Nov. 21, stated that for years he had found one sign of pregnancy in the early months, to be invariably certain; and then went on to give the details exactly as published by Hegar. There have been several cases lately of women with highly exaggerated scoliosis in full term of pregnancy. In every instance, however, except in one case at Charité, service of Prof. Gusserow, the spinal deformity had not interfered with the normal pelvic measurements.

Of laparotomies there seems to be no end. Prof. Schroeder is constantly opening the abdomen, and his gross results are admirable. He makes a diagnosis rapidly, operates easily, and with the perfect self-possession that comes of varied experience. There are very many points in medical education and procedure at Berlin which arrest the attention of an American. It must be a rare phenomenon to find a German holding the University degree who has not something of scientific merit, and of clinical experience. The opportunities for the *student* here to perfect himself in the practical details of his calling, such as frequent gynæcological examinations, obstetrical work (the application of forceps, craniotomy, etc.), eye and ear operations, the opportunities for following up the clinical histories of patients, and for pathological investigation, are far ahead of anything at home. I know of no college in the United States where a student can obtain so much practical experience in gynæcology and obstetrics as they can here. Over two thousand cases yearly of labor are attended by students, and quite as many in the gynæcological department are examined by them. Then the knowledge of pathology which seems indigenous to the German medical people is simply astonishing. Even the least among them can go to the *fons et origo* of any case under discussion. This is not a superficial knowledge, but a deep, logical ratiocination which is the outcome of years of study. It is a concomitant fact of the German character, which is not satisfied until it has reached the beginning. They are not diffuse. They never attempt too much. They *exhaust* one subject before attempting another. Their pathology is the grand, massive foundation, upon which everything else must rest, and I cannot but wish that we had more of it. Every day I have cause to blush for my own shortcomings in this way. But in saying this much, I have said nearly all.

The post-graduate courses in New York and elsewhere are much more satisfactory to the medical man than are any of the poli-kliniks here. There are no clinics in the world, on the eye, better than those of Knapp, Agnew, Derby, and others. The same may be said of the gynæcological courses of Munde, Dawson, Baer, Dudley, and men of equal eminence in other leading cities at home. In practical didactic lectures, Emmet and Thomas, Goodell and Byford, Parvin, Palmer, Reamy, Flint, Bartholow, Minot and Whittaker cannot be excelled here, even if they be equalled. All of our specialists, it seems to me, do certainly as good work and in a much neater fashion than is the custom here. It is certainly well for the specialist to see different methods of operating, and it enlarges his general views, but for actual study our poli-kliniks are much superior—except in histology and pathology. It is somewhat a matter of speculation in Berlin, and the return for one's money is not great. *Le jeu ne vaut pas la chaudelle.* I am confining myself more to the case of *medical men* and not to students. If one is fortunate enough to make some arrangement with one of the assistants he can often get much more *real* knowledge than he can from the more distinguished professor. Such a course is that of Dr. Weyder (first assistant to Prof. Gusserow), who, for 20 marks, gives an admirable course to physicians on obstetrics, forceps, operations, etc. In addition to this he is a very genial, courteous, warm-hearted man. But these are characteristics of Dr. Gusserow himself and of all of his assistants. Not as much may be said of some of the others. Landau's clinic covers the average cases that would come into the office of a general practitioner, but the amount of his material is small, his operations very, *very* rare, and his fee of 50 marks for four weeks somewhat excessive.

The very general use of chloral-chloroform, and the recklessness in its administration is a matter of universal comment. Scarcely an examination is made without the use of this anæsthetic. A patient is often kept for an hour under its influence while the professor discusses her case before the students. Barduken lost three cases and Bergman one

case in one semester from chloroform narcosis. The good results from primary surgical operations are largely due to strict antiseptic detail, for in manner, method, appliance and detail our surgery is finer, cleaner, and more ingenious. Some of the mechanical devices in use, especially in gynæcology, are extremely clumsy and cumbersome. I cannot imagine German manners of examination, and German methods being carried out at home. They would scarcely be tolerated, and would be abhorrent to the greater sensitiveness of our women, even of the most debased. So far as my observation goes, we do very much better gynæcological work in the United States than is done in Berlin, and nowhere can a medical man see better work upon the eye, or have more extended facilities for observation than in New York. For the special histology of the normal eye, Moorfield's, London, Eng., is the best and only place I know. There is no such course given here. Two matters in surgery have impressed themselves upon me since my arrival in Berlin, with convincing force—one is that the intra-peritoneal treatment of the pedicle is the most correct one; and that there is a wide and growing field for conservative gynæcology. This is dangerous ground for a man with hobbies, and I may not traverse it, lest I become prolix. Suffice it to say that I am very strongly of the opinion that many cases would do better but for meddlesome interference—that the surgeon's skill is too often called into service, and that extirpation of the uterus, by any method, for malignant disease, exposes the patient to a terrible risk, and is but tentative in its results. There is much special and general surgery here—much that is good and necessary, much that is unnecessary, and some that is bad. I do not consider it good work to amputate the anterior cervical lip for a simple hypertrophy, not excessive and not accompanied with symptoms of bodily disorder. I do not consider it necessary to operate upon a woman 68 years of age for a malignant orbital tumor, when the result of such operation will be fatal in the great majority of cases. I do not consider it wholesome gynæcology to sew up every lacerated cervix, to dilate in every uncomplicated case of endometritis, to operate in every instance of fibroma, of myoma or carcinoma, or to use intra-uterine injections of strong, saturated liquors of iron, iodoform or iodine as frequently as I have seen them used. I *despise* pessaries, and most of all the big, unwieldly ones that are the fashion here. It is not uncommon among some professional men here to feign a disbelief in the efficacy of any method not purely of Berlin origin, and to cling with fanatical clanishness to unwieldly devices simply because they are indigenous. If our German brothers can teach us pathology, histology, and exactness in examination, which they certainly can do, they can learn much from us in elegant surgery, in light and effective mechanical devices, and in conservative practice. H. R. B.

CHARLES W. SHUMWAY, M.D., for nearly 30 years an active and respected practitioner of this city, died on the 19th inst., from diabetes.

DOMESTIC CORRESPONDENCE.

SECTION ON DISEASES OF CHILDREN.

DR. N. S. DAVIS, EDITOR JOUR. AM. MED. ASSO., CHICAGO, ILL.:

Dear Sir—Will you, through the columns of the JOURNAL, please request those who intend reading papers before the "Section on the Diseases of Children" to be kind enough to send the title of their papers, by the last week in March, to the Secretary of the Section, Dr. S. S. Adams, Washington, D. C., or to me, at Marshall, Texas.

It is necessary to know the titles of the several papers to be presented, so that the committee of arrangements may be informed at least one month before the meeting of the Association, the last Tuesday in April, and we trust that no one will fail to notify us in due time. Very respectfully,

JOHN H. POPE,
Ch'm'n Sec. on Dis. Child., Am. Med. Ass.

NECROLOGY.

REED, JOSEPH ALLISON, M.D., of Dixmont, Allegheny county, Pa., was born in Washington, Pa., December 31, 1823, of Scotch-Irish parentage, and died November 6, 1884.

He received his classical education at Washington College, Pa., where he graduated A.M. in 1842, after which he began the study of medicine in the office of Julius Le Moyne, M.D., the noted abolitionist of Western Pennsylvania, receiving his degree of M.D. from the Jefferson Medical College in 1847.

Shortly after he located in Allegheny City, where he in a short time established himself in a large and lucrative practice. Having a special aptitude for the study and treatment of mental diseases, he was, upon the establishment of the insane department of the Western Pennsylvania Hospital, at Pittsburgh, in 1854, chosen physician in chief.

In 1857, the hospital having in the meantime been set apart exclusively for the care of the insane of the western district of Pennsylvania, Dr. Reed was appointed resident physician and superintendent.

Upon taking charge of the hospital it contained within its wards twenty-three patients, was in debt, and affairs were in the worst possible condition. With characteristic promptness and energy he soon raised the amount necessary to relieve the institution from debt, and provide food and clothing for the starving inmates, in a short time placing the institution on an equal standing with others of the same class.

Through his efforts and those of the widely-known philanthropist, Miss Dix, appropriations were obtained from the Legislature for the construction of a new hospital, to be located seven miles west of Pittsburg, on the north bank of the Ohio river, and under his immediate supervision the present exceptionally commodious edifice at Dixmont was erected.

Upon the completion of the centre building and two adjacent wings in 1862, he removed the one hundred and thirteen patients then under his care into the new hospital.

The building was subsequently enlarged by the addition of four wings, making the capacity of the institution six hundred. From Dr. Reed's last annual report we learn that since the opening of the hospital there have been under his care four thousand six hundred and ninety patients, of whom one thousand three hundred and ninety-six have been entirely restored, and one thousand two hundred and thirty very much improved in their mental and physical conditions.

To his untiring efforts, unceasing devotion and indomitable energy is due the success of this his life work, and it stands a veritable "Arc de Triomph" to his memory. A nobler memorial in this world is not to be desired.

Dr. Reed was a member of the County, State, and National Medical organizations, Association of Medical Superintendents of Insane Hospitals, American Social Science Association, and American Academy of Medicine.

He was also a member of the commissions appointed by the legislature to superintend the erection of the Danville Hospital for the Insane, and to report on the care of the criminal insane.

He was one of the committee appointed by the American Social Science Association to report on the proper provision for the insane, and a member of the commission appointed by Gov. Hoyt to revise the lunacy laws of the State.

In the death of Dr. Reed the commonwealth loses one of its foremost alienists, and the medical profession one of its most distinguished members, a man endowed by nature with rare qualifications of mind, heart and soul, with unusual executive ability and wonderful skill in ministering to minds diseased.

Possessed of remarkable personal magnetism, all those with whom he came in contact were irresistibly drawn towards him, and his patients were made to feel that in him they had found a *friend* as well as physician. The secret of this lay in the strong, tender and loving sympathy of his spirit, which made him indescribably winning.

I should not be doing full justice to the character of Dr. Reed if I failed to speak of the strong religious sentiment which pervaded and influenced every act of his life.

To know and confer with such a man was a rich privilege, and by his death earth is the poorer and Heaven the richer. At a meeting of the Board of Managers of the Hospital, held shortly after his death, the following preamble and resolutions indicative of the high esteem in which he was held by those who knew him well, were adopted:

WHEREAS, God, in the exercise of his sovereign will and wise providence, has removed by death Joseph A. Reed, M.D., who for years was Superintendent of the Western Pennsylvania Hospital for the Insane, the Executive Committee desire to place upon the records of the hospital the appreciation of his official character and its sorrow for the loss the hospital has sustained by his death.

Therefore *be it Resolved:*

First. That in the judgment of the Committee the great ability and faithfulness exhibited by Dr. Reed, gave him a place among the most prominent of those occupying similar positions in our land.

Second. The Committee has always had the satisfaction of knowing that the sacred interests which it was called upon to supervise—in the care of Dr. Reed—were in the hands of one qualified by professional skill, executive ability and moral elevation of character to counsel it in the best possible manner.

Third. The Committee reflects with pleasure upon the fact that during the illness of Dr. Reed it made known to him the high appreciation of his work, and its great sympathy for him in his sufferings, informing him also of the action of the Committee on October 30, which provided for his relief from all care, thus opening every avenue, as was hoped, for his recovery.

Fourth. That in the death of Dr. Reed the hospital has lost an able superintendent and the charities of the State a most earnest and efficient promoter.

R. C. Loomis, Sec.; F. S. Bissell, Chairman.

D. A. H.

DUGAS, LOUIS ALEXANDER, M.D., L.L.D., of Augusta, Ga., was born in Washington, Wilks Co., Ga., January 3, 1806; died at his residence in Augusta, October 19, 1884. He was of French extraction, his parents coming to Georgia from St. Domingo, West India Islands. After acquiring a good academical education he began the study of medicine in the office of Dr. John Dent. He attended medical lectures at the University of Pennsylvania, and at the University of Maryland, receiving his M.D. degree from the latter in 1827. Doctor Dugas then went to Europe, where he further prosecuted his studies in the large hospitals of Paris and London. Returning to the United States he settled to practice in 1831, in Augusta. In 1832, he and five associates formed the medical college of Georgia, in which institution he held a chair (and was Dean of the faculty,) to the time of his death. He was for many years editor of *The Southern Medical and Surgical Journal.* His contributions to medical literature are numerous and to be found in the various medical periodical publications of this country from 1831 to 1883. Although a general practitioner his taste led him to prefer surgery. He also contributed valuable papers to the Georgia State Medical Association (of which he served as president for one term) and to the American Medical Association. Dr. Dugas became a member of the American Medical Association in 1847, attended 1849 and 1879. He was one of the vice-presidents of the International Medical Congress, held at Philadelphia in 1876. He was from the opening of the Augusta City Hospital one of the attending surgeons, President of the Academy of Richmond Co., and a member of a long list of learned and scientific societies at home and abroad. He served with reputation as a surgeon during the war between the States.

Doctor Dugas was a popular teacher, beloved by co-professors and by students. He was twice married, first to Mary C. Barnes, in 1833; her death occurred the same year. In 1840 he was united in marriage to Louisa V. Harris, daughter of Rev. Uriah Harris, of Columbia, Ga.

At a special meeting of the faculty of the Medical College of Georgia, feeling resolutions of respect for the worth and memory of Prof. Dugas, were passed, and entered upon the minutes and published in the daily papers.

His funeral was largely attended by a host of friends. J. M. T.

BOOK REVIEWS.

DOCTRINES OF THE CIRCULATION. By J. C. DALTON, M.D. Cloth, 296 pages. Philadelphia: Henry C. Lea's Son & Co.

This history of physiological opinions and discovery, in regard to the circulation of the blood is, as far as we are aware, the most complete work upon the subject. It is written in the most charming style and is abundantly backed up by an appendix containing quotations from the ancient writers. To those who wish to read a good book or review their Greek, special advantages are offered by this volume. Neither is the review of the subject untimely. In fact, a passing glance at the history of great events is seldom untimely, for by observing the laborious research and heated argument which extending over periods of years finally result in the establishment of to us every day doctrines, we can better appreciate the labors of those patient workers of to-day, who are by research and thought laying new foundations for future generations. C. E. W.

TRANSACTIONS OF THE MEDICAL ASSOCIATION OF GEORGIA. 1884. Cloth. Pp. 477.

This society has succeeded, by inserting a number of advertisements, in getting up its report in very good shape. Among the most interesting matters we note the following: That myopia is increasing among the Southern negroes as a result of book study; that woolen yarn makes an excellent vaginal tampon; that the coloring of urine with hydrochloride of rosaneline facilitates the recognition of pathological elements in the sediment; also, in a paper by Dr. Jas. M. Hale, it is shown that extreme age is no contra-indication for cataract extraction. Dr. Eugene Foster, in a lengthy and able paper, reviews the opinions of Herbert Spencer respecting syphilis as a sociological problem. Spencer claims that the disease in question is on the decrease, both as to the number of its victims and the virulence of the attack. Dr. Foster, like every other thoughtful and observant physician, is fully aware of the error of this assumption. It may be true that the malignity of the disease is lessened, but this is probably the result of its successful treatment, rather than any change in the nature of the disease itself. As a factor in social affairs, it is evident that Mr. Spencer greatly underestimates the importance of syphilis. C. E. W.

TRANSACTIONS OF THE MEDICAL SOCIETY OF THE STATE OF WEST VIRGINIA. SEVENTEENTH ANNUAL SESSION. Paper. 154 pages.

This comprises numerous reports and contributions. Dr. R. W. Hall, after a discussion of the effects of great irregularities of the surface on atmospheric changes concludes, that during that part of the year in which the surface of the country is cooler than the atmosphere, there must be conditions very favorable to the development of diseases affecting the respiratory organs and such other diseases as are influenced by sudden changes of temperature.

In connection with the report of a case of œsophagotomy by Fleming Howell, M.D., for the removal of a silver half dollar, it is interesting to note that that coin seems to about measure in its diameter the maximum distensibility of the organ, moderate force being sufficient to introduce it beyond the convenient reach of instruments, the subsequent spasm of the œsophagus rendering operation necessary.

Dr. W. H. Sharp presents a lengthy review of the literature and opinions of the profession on the subject of Listerism in Obstetrics. C. E. W.

MISCELLANEOUS.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, UNITED STATES ARMY, FROM JANUARY 10, 1885, TO JANUARY 16, 1885.

Head, Jno. F., Colonel and Surgeon. Retired from active service by operation of law, on Jan. 9, 1885, under provisions of act of Congress approved June 30, 1882. (S. O. 7, A. G. O., Jan. 9, 1885.)

McKee, J. C., Major and Surgeon. Ordinary leave of absence still further extended four months on surgeon's certificate of disability. (S. O. 6, A. G. O., Jan. 8, 1885.)

Bentley, Edwin, Major and Surgeon. Leave of absence extended two months. (S. O. 8, A. G. O., Jan. 10, 1885.)

Elbrey, F. W., Captain and Assistant Surgeon. Sick-leave still further extended six months on surgeon's certificate of disability. (S. O. 9, A. G. O., Jan. 12, 1885.)

Tremaine, W. S., Major and Surgeon. Relieved from duty at Fort Porter, N. Y.

Girard, A. C., Captain and A. Surgeon. Ordered for duty at Fort Porter, N. Y.

Appel, D. M, Captain and A. Surgeon. Ordered for duty at Plattsburg Barracks, N. Y.

Girard, J. B., Captain and A. Surgeon. Ordered for duty as Post Surgeon, Fort Schuyler, N. Y. H.

Havard, Valery, Captain and A. Surgeon. On being relieved at Fort Schuyler, authorized to avail himself of leave of absence (four months). (S. O. 8, Dept. East, Jan. 12, 1885.)

PROMOTIONS.

Lt.-Col. John Campbell, Surgeon, to be Surgeon with rank of Colonel. Dec. 7, 1884.

Maj. R. H. Alexander, Surgeon, to be Surgeon with rank of Colonel. Dec. 7, 1884.

Capt, Henry McElderry, Assistant Surgeon, to be Surgeon with rank of Major. Dec. 7, 1884.

APPOINTMENTS.

Jefferson R. Kean, to be Assistant Surgeon, with rank of First Lieutenant. Dec. 8. 1884.